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Original Communications.

ON THE CHOICE OF OPERATION FOR STONE.

BY JOHN H. BRINTON, M.D.,

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(*Continued from page 673.*)

SUPRAPUBIC CYSTOTOMY.

Of all modern operations, scarcely one has grown more rapidly into favor than this form of cystotomy. Although an old procedure, and one long since regarded as dead and laid to rest, it has of late years been fully resuscitated and so modified that it ranks as one of the most trustworthy efforts of modern surgery. As now practiced, and with the saving precaution of antisepsis, the old-time peril of peritonitis, so dreaded and so fatal, has been practically done away with.

Familiar as this operation is, it may perhaps be permissible to say a few words of the suprapubic, or high, cystotomy as we now do it.

Before operation, the patient should be placed in a modified Trendelenburg position, with his hips and pelvis raised. The dependency of the intestinal coils is thus favored, with a corresponding retraction of the upper vesical fold of peritoneum. A degree of im-

munity against wounding the peritoneum is thus afforded.

The bladder is then well distended with water—by some surgeons air is preferred; an india-rubber bag should then be inserted into the rectum, which when filled with ten or twelve ounces of water will lift the summit of the bladder upward and forward above the pubis; here it is entirely accessible to surgical manipulation. This injection should be made gently, so as to avoid rupture of the rectum, an accident which has occurred. A longitudinal incision two and a half inches long should be made through the integument over the lower fourth or fifth of the linea alba, and carried well down on the pubis so that the top of that bone may be readily felt. The incision is then deepened between the muscular structures upon either side until the prevesical fat above and behind the pubis is reached. This should then be divided and separated in the median line until the front of the bladder is exposed, care being taken not to wound the numerous deep veins on either side. If these be cut or torn, such bleeding may occur as to prevent the recognition of tissues, and retard the operation. The superior vesical fold of the peritoneum must now be carefully looked for, and if seen, it must be carefully retracted upward. Should it be accidentally wounded, the cut must be at once stitched up, before any opening is made into the bladder.

The front surface of the bladder, when reached, may be readily recognized by its pinkish color, and by its rotundity of distention under digital palpation. A tenaculum should then be inserted through its walls, the operator being sure that the peritoneal fold is out of the way and intact. The handle of the tenaculum should then be given to an assistant, who with it draws the bladder to the upper angle of the wound. An incision is then to be made well upon the anterior and upper convex surface of the bladder. This opening should be high up, so that if fistula should ultimately follow, the level of the contained urine may be at the highest line. This would give the greatest permanent capacity of the bladder, and will greatly contribute to the comfort of the patient in after life.

The incision should be from three-quarters of an inch to one inch in length, sufficiently large to permit the introduction of the forefinger and the exploration of the bladder. If the calculus be large, the incision may be extended to any necessary length. The hold of the transfixing tenaculum should be always preserved, so as to prevent the falling back and collapse of the bladder, and premature escape of its contents, a source of hindrance to further exploration. By some surgeons a looped ligature passed through the bladder wall by a curved needle is preferred to the tenaculum.

If any stone be found, it should be removed by the forceps. The bladder should then be washed out by the antiseptic douche, and thoroughly explored. In many instances, where it is advisable, the examination of the bladder may be assisted and made exhaustive by the use of reflected or electric light.

After operation urinary infiltration may be prevented by inserting through the wound a rubber drainage-tube of a quarter of an inch caliber. This may be rounded at the vesical end, and fenestrated, and may be stitched to the edges of the integumental wound. It should be long enough to empty by its external end into a receiver. If at any time it should become choked, the obstruction may easily be removed by injection of air or water, from a rubber bulb or small syringe. The retention of this drainage-tube need not be prolonged; it can usually be taken away at the end of two or three days, and the escaping urine may be received on pads of gauze, which should be changed every four or five hours. The position of the patient in bed may be at his pleasure—recumbency either on his back or side. This may be left entirely to his own wishes. The old idea was that to prevent infiltration he should be kept strictly on his back, especially after the drainage-tube had been taken away. This I disregard, and I have never observed any evil consequences to follow the assumption by the patient of the attitude in bed which is most comfortable to him. On the contrary, when he rests at will, he experiences less bladder irritation, sleeps more readily and uninterruptedly, and his convalescence is in every way more speedy and satisfactory.

The healing of the external wound usually takes place rapidly, by granulation on its sides. The incision in the bladder gradually contracts, and about the tenth or twelfth day, and sometimes earlier, the urine begins to flow through the urethra. By some surgeons a soft catheter is inserted into the bladder, immediately or early after the operation, but this usually is not necessary, as the drainage through the wound takes care of itself, and the patient is much more comfortable if spared the annoyance of a retained

catheter, ever an obnoxious foreign body, and especially so after vesical operation. Occasionally the closure of the wound of operation is tardy, a fistula is threatened, and the patient becomes much disturbed in mind at the very idea of an open urinary track. It is then the duty of the surgeon to allay the patient's apprehensions and to calm his mind. My experience of such cases is that generally the fistula eventually heals. Even should it remain open for some time, the occurrence is not to be deprecated, for the bladder is as it were under tolerant examination all this time.

Should any tendency to fresh stone formation exist, and this is not uncommon in old bladders with enlarged prostate and phosphatic urine, the presence of these new calculi can certainly be detected through the fistulous opening, and they can readily be extracted through the same channel. And here it may be remarked that when prostatic enlargement exists to such degree as to form a bar to the extrusion of urine through the internal meatus and by the urethra, it is, I believe, a better and safer surgery to preserve the fistulous abdominal opening as a natural channel, and so be able to ignore and discard the hypertrophy of the prostate gland. This really ceases to be of any importance when the patient has once learned to draw his water by his new channel. It has been said that there is a constant leakage, or urinary incontinence, by the newly formed urethra. This objection is, however, rather theoretical than otherwise. Practically it will be found that if the incision in the bladder be made on its front surface, as high up as possible, the urine will subsequently accumulate until the bladder is filled up to the level of the opening, and that no leakage can or will occur until this water level is reached. Moreover, it is often the case that before any leakage occurs the patient will experience a sort of premonition not unlike that which precedes normal micturition. He can then introduce his short catheter through the artificial canal.

Dangers of Suprapubic Method.—The vital question connected with this operation is that of its danger. Its inheritance from the past has been accompanied by a suspicion of those perils, with which before the date of antisepsis and laparotomy the incision of the belly and peritoneum was then fraught. Yet so perfect is the technique of the present suprapubic cut that the occurrence of the once dreaded peritonitis need no longer be feared. Nor is there any danger of serious bleeding, for even if the prevesical veins be injured the bleeding would only be sufficient to obscure and delay a little the later steps of the operation. The peril of shock is at a minimum, nor need it be feared, if we bear in mind that the peritoneal cavity is not opened; nor is there the shock of bleeding. The only danger which can threaten the patient must depend upon preexistent pathological conditions of the associated organs—the prostate, ureters, and kidneys. The same conditions, however, would influence equally any surgical vesical interference. Clinical experiences and the observation of results, rather than mere academic discussion, must after all is said be accorded their full weight in judging of the value of this operation. It is well, too, that the consensus of the opinions and operative preferences of individual surgeons should be gathered, rather than a mere bald statement of heterogeneous statistics.

My own conclusion, based upon my own cases and upon my observation of the more numerous experiences of my colleagues and friends, is that this operation is accompanied by scarcely any shock, and that it is free from peril to a remarkable degree. I have been so fortunate as never to lose a patient upon whom I had performed it. I have seen only one fatal case, and this was operated on by a most expert surgeon, under urgent conditions. The patient was a very old man, wearied by long travel and unceasing pain. When brought to Philadelphia he was suffering unbearable agony, which demanded immediate relief. The operation was one of absolute necessity, which could not be deferred. The bladder was found to be in a softened and ruined state, and the patient died two or three days afterward.

The advantages of the high operation may be thus briefly stated:

1. The ease with which it can be performed.

2. Its thoroughness, affording as it does an easy extraction of the calculus, and also the opportunity for full digital and ocular examination of the interior of the bladder. The encroachment upon the bladder cavity of prostatic growths and other tumors can also readily be detected. If the operator so decide, these can be excised or removed. If a small calculus be hidden by a prostatic bar, or by any fold of mucous membrane, it can surely be felt and taken away.

3. In fact, the high lithotomy offers a greater degree of thoroughness and opera-

tive certainty than any other method for the removal of stone from the bladder.

4. Good drainage can be effected. If desired, an assured immunity from prostatic trouble can be obtained by keeping the cut open and by the establishment of an artificial urethra.

5. The constitutional involvement is but slight, and there is little danger of shock or septic poisoning, or other general accidents.

6. The convalescence is speedy and the after cure satisfactory.

7. The operation is properly indicated at all ages of adult life, and also, as shown by clinical experience, in boyhood before puberty.

PERINEAL LITHOTOMY.

The varieties of these operations have been before the profession from time immemorial. For the last century and a half the single lateral, bilateral, and median methods have been practiced with a perfection of detail to which nothing can be added. The perils attendant upon all these operations have been fully recognized, and nothing further need be said in this direction. A perineal incision into the bladder has always been regarded as a last resort, to be submitted to by the patient in full appreciation of the possible chances of a bad result. It has ever been looked upon as a major operation, with all the accompaniments of shock, hemorrhage, exhaustion, peritonitis, and septic infection. The death-rate therefore has been high. Almost the only advantage claimed for it to-day is the dependent drainage. This, however, seems to be a questionable advantage, involving as it does a greater risk of local blood contamination from decomposing urine and pus secretions.

From the foregoing considerations it seems fair to conclude that litholapaxy is eminently the proper operation in the case of a stone, either small, or soft, or both; and where there is reason to believe that the bladder and associated urinary organs and prostate gland are not seriously diseased, and where, too, the general constitutional condition is fair. Where the contrary obtains, especially when the prostate gland is evidently largely involved in its middle lobe, and when the symptoms of urinary retention are marked by the presence of residual urine in greater or less quantities, I believe that the operation is not indicated. These symptoms, and particularly excessive vesical irritability and highly phosphatic and purulent urine, must lead one to suspect the presence of a small, rough calculus, concealed by an internal prostatic projection. In such cases it seems that the high operation is greatly to be preferred. And here it may be added that even in cases where litholapaxy seems proper, it is an operation for a trained and experienced specialist, rather than for the general surgeon. At all events the operator, whoever he may be, will do well to investigate for himself the mechanical conditions which accompany sudden bladder distention. I would thus limit decidedly the practice of litholapaxy, and turn rather to the suprapubic operation, which will have, I believe, a wider application in the future, far wider perhaps than in the past. It is, in fact, a procedure readily performed and which is devoid of great and sudden perils. As far as modern experience goes, it is free from that shock and that unexplained exhaustion which so often ambushes the operator by other methods.

I have met with many who hesitate to adopt the suprapubic operation, but I have met with none who could fortify their opposing convictions by their own clinical experience. Their disinclination for this operation would appear to be a relic of the past. I have fully shared this feeling, and I would scarcely have thought that my views could undergo so marked a change in this matter. However, I believe that suprapubic lithotomy is the preferable operation in most cases of stone, *excepting* for small or soft stones, and under the circumstances referred to, in which litholapaxy is doubtless indicated.

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*WHAT WE CAN DO FOR CASES OF SQUINT.**

By Edward Jackson, A.M., M.D.,

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In no department of medicine or surgery is it more important to accurately adapt our therapeutic measures to the requirements of the individual case. He who treats squint without painstaking discrimination leaves in his path a succession of patients disappointed or made worse by their experience with him, and who must of necessity advertise his incompetence so long as they live. Experience of haphazard operating has made the community rather shy of squint operations; al-

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though where properly advised and properly performed, they are among the most reliable and satisfactory of surgical procedures.

In the first place there are cases of marked *apparent squint* in which actually no squint is present. We judge of the direction of the visual lines by the direction of the cornea. Usually the visual line passes through the center or a little to the nasal side of the center of the cornea. When it does so the eye seems to look properly at the point of fixation. But when the visual line passes through some other part of the cornea the eye seems to be directed elsewhere, although it may fix accurately the object looked at. About the first thing to be done for a case of apparent squint is to try the fixation of each eye separately; to find how the eye does turn when it fixes a given point, and if it really is squinting when it appears to squint.

These cases of apparent squint should not be dismissed without a careful explanation of their real condition, and the uselessness and harmfulness of applying the treatment for squint to eyes that really see normally together, and only appear to deviate. If you fail to make his condition clear to such a patient, he will pretty certainly fall into the hands of some one who will offer to do an operation and promise relief. I have known a young woman who had perfect binocular vision, with a trace of esophoria, treated by a prominent ophthalmic surgeon for a year with prisms, and an operation suggested for a supposed divergent squint, simply because one cornea was markedly displaced outward, giving the appearance of squint, although the eyes were properly directed.

COMMENCING SQUINT.

The time to do most good by the treatment of squint is at its beginning. The wise caution against early operation means that operation should be a last resource, not the first one. It is not that operation is capable of yielding better results in squint of long standing, but that operation is only necessary when a deviation has become comparatively permanent; and it can only be intelligently undertaken when certain points have been carefully investigated, and the influence of other measures has been faithfully tried.

No case of commencing squint should be kept untreated by the advice to wait in the hope that the child may "outgrow" it. The probability of outgrowing a squint, and the rapidity and completeness of outgrowing it, depend chiefly on the intelligent care and treatment of the case. A few squints are outgrown without any especial care. A great many more would be outgrown—that is, gradually overcome and recovered from—with proper early attention. The possibility of outgrowing it is the strongest reason for giving every case of squint the earliest attention, in order that it may not become fixed, and so mar the development of the function of binocular vision that complete restoration will become impossible.

To cut short a commencing squint the most generally effective measure is *the wearing of lenses.* Convergent squint commonly begins before six years of age, and hyperopia is often an important factor in causing it. Divergent strabismus, usually arising in connection with myopia, which is commonly acquired during school life, begins later. Even where the error of refraction is not the only cause, or the chief cause, of the squint, its influence at the time the squint is developing is always unfavorable, and should be removed if possible.

Prior to the development of skiascopy the exact measurement of errors of refraction was not possible until the child reached an age to respond satisfactorily to the subjective tests. Hence the correction of errors of refraction was too inexact and uncertain, at the time of commencing squint, to be of much practical value. A few cases were successfully corrected; but the results of inaccurate estimates of the refraction in other cases were such as to destroy confidence in the chance of relief by lenses. Now, however, we have in skiascopy a method of accurately correcting errors of refraction during the formative period of squint, when such corrections are of the greatest value; and such corrections should be employed in the great majority of cases. I have prescribed convex lenses, and had them worn with the greatest benefit before the age of three years. Priestley Smith has given them at the age of fourteen months. There is little difficulty in having glasses worn by very young children. The eyes can be kept under a mydriatic, and if there is a decided need for the lenses the child very quickly realizes that it sees better with them. It accepts them as a matter of course, long before its elders have recovered from their amazement or ceased to condole on its misfortune. It is quite possible by the wearing of lenses until the tendency to squint has been overcome, and the function of binocular fusion thoroughly established, to render the child safe from a recurrence of

the squint, even if the glasses should not be worn constantly at a subsequent period.

In regard to lenses for the correction of squint, the rule to correct all the ametropia is imperative, and the glasses must be worn constantly. Then the mounting of the lenses must be carefully looked after. The wearing of strong lenses with the optical center of one slightly higher than that of the other, giving the effect of a prism base up or base down, might render binocular vision impossible, when the whole purpose was to render it easy and certain. Decentring and prismatic combinations may be needed to further this purpose of the lenses, to promote binocular vision.

The placing of one or both eyes under *the influence of a mydriatic* is commonly mentioned as a therapeutic resource in commencing convergent squint, and properly so. But it has a usefulness quite subordinate to that of lenses correcting hyperopia. It may be used in both eyes, to prevent all efforts at accommodation, with which excess of convergence is apt, at first, to be closely associated. Or it may be used only in the eye that is noticed to fix habitually, to blur its vision, and compel the patient to use the eye he is inclined to let deviate. For this latter purpose it will do no good if the vision in the deviating eye be so defective as to be worse than the other when under the mydriatic.

If atropine is used at all, it should be carefully and regularly instilled so as to keep the eye fully under its effects. The pupil may seem to be pretty well dilated, especially in a child, when there still remains a good deal of accommodative power; and the simple weakening of the accommodation may provoke increased accommodative effort, and with it increased convergence, thus doing harm rather than good. For such a purpose atropine is the mydriatic to be preferred. The briefer influences of the others, with their greater liability to cause symptoms of mydriatic intoxication, render them distinctly inferior for this service.

The use of the atropine is generally but a temporary measure, to hold the tendency to excessive convergence in check, while the case is being studied and glasses adjusted; or until the child becomes accustomed to the lenses and learns to see through them, giving up his excessive efforts at accommodation. In a few cases it may be worth while to continue the use of the mydriatic longer, but generally this is the extent of its usefulness.

Next in the order of practical usefulness, of the measures generally applicable in commencing squint, is the *occlusion of the better eye*, the fixing eye, forcing the child to use the one which seems inclined to deviate. This will aid in developing the power of using an eye that is congenitally imperfect, and will prevent the formation of a fixed habit of disregarding the images formed in it. It is most beneficial in cases of temporary paresis of one or more of the ocular muscles, preventing the establishment of a squint before the affected muscle recovers sufficient power to insure normal ocular movements.

Ocular palsies are not nearly so rare among children as the published records might be taken to indicate. They are a good deal neglected. The child complaining of seeing things double, unless he has very intelligent or timid parents, is apt to be told not to think about such things, or to look so he will not see double; and as diplopia very quickly ceases to be annoying in young children, nothing more may be thought of the matter until a decided squint has become permanently established. Most paralytic squints tend to become partly concomitant, and it is certain that a portion of the cases that are subsequently brought to our notice as concomitant squints have such an origin.

The especial liability of diphtheria to be followed by paralysis is well understood. But often the affection of the eye muscles does not become evident until several months after the diphtheritic attack; and it may follow a mild attack that has been regarded as a simple sore throat and quite forgotten. Any indication of diplopia should be attended to. Satisfactory tests as to the condition of the ocular muscles can be made on quite young children. If there is evidence that, with apparently good eyes, the child is disposed to habitually use one and allow the other to deviate, the regular exclusion of the fixing eye, by a bandage or a closely fitting opaque shade, should be resorted to, until a careful investigation of the condition can be made and other effective treatment adopted.

The partial exclusion of one eye so that the patient will be compelled to turn the eyes in a certain direction might be of service in some cases of paretic ocular muscles; but it is doubtful if it should be mentioned among really practical measures. Certainly the importance sometimes attached to it is quite exaggerated.

It is perhaps hardly necessary to remind you that the *treatment of the general condition* of the patient is an important matter in com-

mencing squint. Of those cases that cannot be traced to any distinct paralysis or paresis of a particular muscle, a large proportion arise during periods of distinctly impaired health. It would look as though the extremely complex coordinations required for perfect binocular adjustments were easily overthrown or prevented, when the central nervous system was not in its best condition. Hence it may be of capital importance, while taking care to make the binocular adjustments as easy as possible, and to prevent the establishment of any vicious method of using the eye muscles, to hasten in every way the recovery from a temporary condition of depression, in which the coordinating nervous system is unequal to the tasks laid upon it.

ESTABLISHED SQUINT.

No case of curable squint can be regarded as absolutely established; and when our more radical measures have disturbed the accustomed condition, any of the procedures applicable to commencing squint may render important service. But there are certain methods of treatment that only become applicable when the deviation has reached a comparatively established and fixed condition.

Most important among these are *operations upon the eye muscles*. These operations effect a more or less permanent alteration of the relations of the eyeball to surrounding structures, and are, therefore, only justified by a false relation of corresponding permanence. Thus operation is not justified by a paralytic squint which only occurs when the eyes are turned in a certain direction, or an intermittent squint which is part of the time entirely absent. In a squint that is always present, but variable in amount, we must first by lenses, or a mydriatic, or in some other way, eliminate the variable factors before we can attack the permanent factor to the best advantage by a permanent alteration in the relations of the eyeball. Neglect of this precaution has done much to bring squint operations into merited disrepute.

I shall not now go into the technique of the squint operations, but briefly consider them in certain classes. We have first *tenotomy*, which seeks to lessen the influence of the tenotomized muscle upon the movements of the globe. It is at once the simplest and the easiest of our operative procedures, and yet the most likely, when improperly undertaken or performed, to cause serious permanent harm instead of benefit. It is the operation that is liable to be followed subsequently by unsightly deviation in the opposite direction.

Next we have *advancement*, designed to turn the eye more in the direction of the muscle operated upon. It is comparatively free from the danger of turning the eye too far, so that it will deviate in the opposite direction. But it is more tedious and difficult than tenotomy, and followed by greater reaction and slower healing.

Then we have extensions of tenotomy by the *division of accessory bands;* and extensions of advancement by the *advancement of tissues adjoining* the tendon, as the capsule of Tenon and the overlying tissues. There are also subsidiary measures like the insertion of a stitch, which is tied so as to retain the eye continuously in the desired direction. The maximum effect is obtained by doing a tenotomy on one muscle and an advancement on its antagonist.

Appropriately chosen and properly executed, there are few operations in surgery that give more uniformly satisfactory results than those on the eye muscles. Still the exact effect of a given operation cannot be certainly predicted; and the most perfect results are only attained when the operation is supplemented by other measures.

A supplementary method of practical value is practice with the *reading-bar*. This consists of a light strip of metal, wide enough to cut off so much of each printed line from each eye as to prevent the reading of the whole line by either eye alone. It is placed far enough from the page (two and a half or three inches) to allow each eye to see the part of the line cut off from the other. It is supported in position by a base held against the page by one thumb, the base being connected with the bar by an upright perpendicular to both.

The reading-bar is to be used when there is a continuous squint, or when, as after a squint operation, the proper coordination of ocular movements is not established. It compels fixation with both eyes for the reading of each line. If the two do not fix together, the deviating eye has to be brought up to the position of fixation each time the reading-bar prevents the fixing eye from reading farther. The tendency is to accustom the deviating eye to the practice of fixation, and to induce it to fix with the fixing eye, to avoid the interruption that would otherwise be caused in the reading.

The great advantage of the reading-bar is that it gives the required training while the patient is engaged in an ordinary occupation or amusement. Other exercises of the sort, as the stereoscope applied to the orthoptic training of the eye, are only available as special tasks quite aside from the ordinary use of the eyes. On that account they are certain to be neglected after a time, unless the patient remains under the regular supervision of the surgeon, and makes a business of perfecting the cure of his squint. The usefulness of the reading-bar is limited for the treatment of commencing squint by the common inability of such young patients to read.

An *orthoptic exercise* that any patient can practice for himself, and which may be of value after a squint operation, as it is in cases of ocular paralysis, is that of holding a finger or a lead-pencil in some part of the field where fixation is easy, and moving it slowly to a part where it is more difficult. Thus for weakness of the right external rectus it can be held first on the left and then moved gradually over to the right; or for failure of convergence (relative divergent squint) it may be held first at a distance and then gradually approximated to the eyes. Even a young child may be induced to engage in the game of keeping the pencil single as long as it can. When in spite of the effort the pencil appears double, the effort is given up, and the gaze turned elsewhere.

The usefulness of *prisms* in the treatment of actual pronounced squint is so limited that their employment need not now be discussed. They are valuable chiefly in cases of vertical squint or of paralytic squint.

I have reviewed briefly our principal resources for the treatment of squint. What can we accomplish with them? For apparent squint we can do nothing. The possessor of this defect enjoys all the advantages of binocular vision, but he suffers from a cosmetic defect, sometimes very annoying, but incurable without the sacrifice of binocular vision.

Complete permanent paralyses of the orbital muscles, whether congenital or acquired, and particularly those of muscles supplied by the oculomotor nerve, are only capable of benefit to the extent of reducing the deformity and rendering it less offensive. Fixed defects of the coordinating centers, generally having a basis of congenital anomaly, but sometimes due to an abnormal development caused by squint, are also incapable of complete relief. This class includes some of the cases of squint with so-called amblyopia exanopsia, and the rare cases of "antipathy to single vision."

Great elongation of the eyeball renders some cases of squint with high myopia also incapable of complete correction.

But after all these are set aside, there remain the great mass of cases of squint, more or less concomitant, that we can completely relieve from noticeable deformity, and to whom we can give more or less of the benefits of binocular vision. Perfect development of the power of binocular vision may not be attained in many cases of squint, yet some of its benefits can be secured for the great mass of patients.

HEROIN IN COUGH.

By Chas. Herwirsch, Ph.M., M.D.,
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Among the newer drugs which have within a year appeared on the market, and to which the attention of physicians has been called, heroin appears to be one of the best. Dresser and Floret published their experiments with this new derivative of morphine in the *Therapeutische Monatshefte* for September, 1898, in which they stated that heroin not only very much modifies and quiets the cough, but also that the frequency of respiration was lessened and the inspirations prolonged. The same authors state that heroin has a more sedative effect upon respiration than morphine, and is ten times more powerful than codeine.

Leo (*British Medical Journal*, April 29, 1899) also discusses the value of heroin. He states that the drug has a particular action on the respiratory centers, lessening the frequency but increasing the depth of breathing. He says that its narcotic action is much less than morphine; and thus in sciatica, neuralgia, cardialgia, including the pain due to gastric nerve and muscular rheumatism, heroin did not relieve the pain, or did so only momentarily. Leo found the action of this drug exceptionally satisfactory in the various forms of dyspnea; it increases the duration of inspiration and the amount of air taken in. He cites a number of cases, among them two cases of uremic dyspnea, some of emphysema, chronic bronchitis, and asthma, and says that in all but three cases

out of thirty the results were good. He also says that heroin can be used with confidence, and will be permanently found to be a valuable remedy, in diseases accompanied by dyspnea.

During the last ten months I have used heroin in more than thirty cases, mostly with good results. In acute bronchitis I used it in adults as well as children with much satisfaction. In chronic bronchitis and in phthisis the drug has in most cases given good results, and failed in only three.

Miss W. H., aged thirteen, contracted a heavy cold in December, 1898. After administering the usual remedies, the patient had still, after three weeks, a distressing cough with tenacious expectoration. I ordered heroin, $\frac{1}{24}$ grain, three times a day. After forty-eight hours the patient reported the cough decidedly better, and the expectoration much lessened. After a week's treatment the cough had disappeared.

M. B., a boy nine years of age, was left with a severe bronchitis after an attack of measles in December, 1898. He was given heroin in $\frac{1}{24}$-grain doses three times a day, with the same happy results.

Mrs. H. H., aged forty-three, had an attack of acute bronchitis in January, 1899. After employing hyoscyamus and codeine without very good results, heroin in $\frac{1}{12}$-grain doses was given three times a day; this eased the cough, the patient could sleep, and in a week she had recovered.

Mr. F. A. G., aged thirty-one, had an acute bronchitis and laryngitis in January, 1899. He was a business man and used his voice constantly. I ordered local applications to his throat, with inhalations, and gave him heroin in $\frac{1}{12}$-grain doses, four times a day. He reported from day to day as getting better, only complaining of a drowsy feeling. After three days the heroin was cut down to three doses a day, when the drowsiness ceased, and after ten days the patient reported himself free from cough.

I myself contracted an acute bronchitis in February, 1899, and heroin in $\frac{1}{12}$-grain doses relieved the cough promptly.

F. B., aged nineteen, suffering with phthisis pulmonalis, with a cavity in the left upper chest and much dyspnea. He is frequently troubled with a dry cough. He had formerly taken morphine in one-eighth-grain doses, or codeine in half-grain doses, four times a day. Heroin is now given in $\frac{1}{12}$-grain doses three times a day; after a few doses it relieved the cough and subdued his dyspnea.

A. P., aged twenty-seven. Phthisis pulmonalis, cavity in upper lobe of right lung. He has been in different sanatoria, and had taken for a year serum injections. Two months ago he came to me, complaining of a cough lasting the last five weeks day and night, much dyspnea, vomiting after taking food, and an afternoon temperature of 103°. At first I gave this patient codeine ¼ grain and acid hydrocyan. dilut. 1½ minims in a vehicle every three hours, with local treatment to his throat; this relieved him for three days, when he again began to cough constantly. I now ordered heroin in $\frac{1}{12}$-grain doses every four hours, which promptly relieved the cough and dyspnea, and made him drowsy. After several days the above dose was given every six hours, and he now takes that dose every eight hours, and except for a cough in the morning is very comfortable during the day. Other appropriate treatment was instituted, and on the 7th of August, when I last saw the patient, his temperature in the afternoon was 99.4°, respiration 28, pulse 92 per minute; he had gained four pounds in two months. He coughs very little and reports feeling well and enjoying his meals. He has not vomited for six weeks; bowels are normal.

At the Rush Hospital I am using heroin on a number of patients mornings and evenings in $\frac{1}{12}$-grain doses for the cough, and among ten patients in only one, after six weeks' use of that dose, had the same to be increased.

Early in my experience I gave to a patient, Mrs. F. P., aged thirty-five, suffering from phthisis, heroin in doses of $\frac{1}{12}$-grain every four hours, but although the cough was relieved I had to discontinue the drug, as it produced sleep, the patient not being able to keep awake at any time, even after the dose was diminished.

David E., aged twenty-eight, suffering from phthisis, with extensive cavity in left chest, was given heroin in $\frac{1}{12}$-grain doses for his cough. The drug had no influence on his cough, but constipated him to such an extent that it had to be discontinued.

F. L., male, aged forty-seven, suffering from phthisis pulmonalis, last stage, was given heroin as an experiment. The patient was very comfortable with morphine in one-eighth-grain doses three times a day; this was omitted and heroin in $\frac{1}{12}$-grain doses given, which was later increased to four doses a day, and again a few days later to one-sixth-grain doses three times a day, but

without having any influence on the cough, and I had to return to morphine again.

I have in all treated thirty-five cases with heroin, but space prohibits the giving of more histories.

From the foregoing cases the following can be deduced: Heroin in doses from one-twelfth to one-sixth grain three times a day is a very valuable addition to our materia medica in acute as well as chronic bronchitis, and the cough accompanying phthisis. The drug acts well in most cases, and except in the three cases mentioned, where it did not give any benefit and had to be discontinued, the results were always satisfactory. The number of respirations of the patients taking the drug was diminished, as the charts in the hospital, and of some of the cases in private practice when such could be kept, prove the drug, after being taken in some cases for three months, except in one case, had not to be increased, and no drug habit was established. Except in one case heroin had no tendency to constipate like morphine, and in only one case did drowsiness follow its administration. No headache or disorders of the stomach resulted from the use of heroin, as is often the case with morphine. The dose is much smaller than either morphine or codeine, and very much cheaper than the latter drug, a great advantage if a drug has to be used for a long time, as in phthisis. Of late hydrochlorate of heroin, soluble in water, has come into the market, which is adapted for hypodermic use, and as Eulenburg in the *Deutsche Medicinische Wochenschrift* of March 23, 1899, reports, the same so used acts more rapidly than when given by the mouth.

SOME THERAPEUTIC MEASURES OTHER THAN MEDICAMENTS.

By W. L. Johnson, M.D.,
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The writer has no word against modern medicaments, but desires to remind others and be himself reminded of some measures, not medicinal, in combating disease and its morbid manifestations. Therapy does not mean drugs—it is broader than that.

Let us take pilocarpine, for instance. Gaskell's experiments point to the fact that it, like acids, shortens the systole of the frog's heart, renders it subsequently less and less powerful, and finally causes cessation of its action, the ventricles remaining at rest in diastole. Brunton classifies pilocarpine as a cardiac depressant and paralyzant—that is to say, the cardiac muscle is no longer capable of contraction on stimulation, either mechanical or electrical. Probably by its stimulating the terminal branches of the glandular secretory nerves we have its characteristic effects. Probably it has a central action. We have a copious diaphoresis, and frequently a marked sialorrhea. Hence there are conditions where it is indicated and used: puerperal eclampsia, uremia, and in infectious diseases such as croup, influenza, and scarlet fever—in short, wherever and whenever, theoretically, we desire elimination. But pilocarpine may be contraindicated, for it is by no means devoid of danger. Cardiac or general syncope, sudden pulmonary edema, convulsions, "strangury and sometimes retention" (Brunton), as well as dimness of vision, vomiting, and glandular swellings, have all followed its administration.

We may well resort, then, to the hot pack, steam or vapor bath, or hot-air bath, in cases requiring diaphoresis and in beginning influenza or threatened eclampsia. One of these combined with hot drinks will work the same results as jaborandi. Uremia may thus be treated, and in threatened eclampsia it is both safe and effectual.

It is now considered a fallacy to "dry up" the secretion of milk by atropine—at least by its action alone. Moreover, there are cases where it is contraindicated. Instead of giving the drug and using camphor or belladonna liniment or what not, bandage the breast with a roller bandage or adhesive strips. Massage if you will with belladonna ointment, but *massage*. The same may be said of mastitis, non-surgical: give phytolacca if you must, but massage or bandage. Pressure by the bandage is the most reliable treatment; there is none more sure in aiding nature. Pressure causes absorption; it diffuses, it rests. Its possibilities are only suggested here.

Let us take a case of pleurisy, acute fibrinous, with moderate or no fever when seen, a stitch in the side aggravated on coughing or deep inspiration, and while opium or a plaster, or both, often accomplish much, yet rest is indicated; and that rest is best secured by strapping the affected side of the chest, thus insuring rest to the part that needs it and no other, and in a manner that in no wise interferes with the secretions or excretions. You cannot constipate a man by

"fixing" half of his chest, and you can if you give opium.

There is a field, and a wide one, in which ergot is used, and yet in many instances it would be better to substitute physical means. In hemoptysis many regard this drug as not only of no value but injurious and irrational, since capillary bleeding, it is contended, is not at all influenced by ergot; and furthermore, it causes a rise of pressure in the pulmonary circulation. In these cases intermittent cold applications, sucking of ice, dry cups to the chest (or other counter-irritation), are all of service, and combined with absolute *rest*, the first requisite, more reliable than any medicine, except perhaps morphine.

How frequent it is that convulsions in infants may be controlled by means other than medicinal. The rectal injection of chloral or the giving of bromides, while not devoid of good, are not to be resorted to in a routine fashion, nor yet the inhalation of chloroform. Cold to the head, the warm, *not hot*, bath, the mustard pack, or mustard foot-bath, flushing the bowels, or even the use of an enema, are all measures easily resorted to and which promise good results. Removal of the cause, as a pin, a swollen gum, an overloaded stomach, may be remedied without resort to medicine. Pressure on the carotid (which necessitates pressure on the sympathetic) — a simple procedure indeed — has stopped convulsions. Here again absolute quiet is indicated. Who does not know the value of quiet in strychnine poisoning, and in tetanus?

Not only are nervous symptoms favorably influenced by rest, but many other conditions; so much so that we have a "rest cure" for many ailments. In threatened abortion there is nothing comparable with rest, and while opium is frequently of service, the recumbent position with no exciting influences must always be resorted to and insisted upon. Ergot and opium are of inestimable value in these cases — the former in very small doses of a reliable physiologically tested preparation—but where there is persistent pain and hemorrhage of any consequence they are best met by a mechanical plugging of the vagina. Nor does this procedure necessarily invite abortion. Often when it is seemingly inevitable, resorting to this method, with the view of exciting contractions and causing complete expulsion, we obtain quite contrary results— the os closing, pain and hemorrhage ceasing.

While we have remedies innumerable for meeting postpartum hemorrhage, we have one that is sure, yet not appreciated by all. The physician need not have ice, lemons, vinegar, or persulphate of iron, if he will have unbroken packages of plain sterilized gauze and at once pack the uterus. Why temporize? There is no great danger—not as great as using iron solutions. Give your aseptic ergot for all that, but *pack*. King in his Manual of Obstetrics describes the method. It is safe, rational, and effectual. In Sajous' Annual, 1893, Barker is thus quoted: "After having a fatal case of postpartum hemorrhage from an empty uterus I concluded that if I had used the intra-uterine tampons, as advised by Dührssen, I might have saved the woman's life."

Hilton, years ago, dwelt upon the value of rest especially in diseases and injuries of the spine. To rest the brain does not of necessity mean entire disuse of the faculties. We may rest the part accustomed to work and yet be active mentally, just as we may rest an arm in a sling and yet have much physical freedom; forgetting our professional or business worries in the joy of sightseeing or the rugged, hardy pleasure of hunting, is *rest*. Each organ, as Hilton pointed out, appears constructed with innate powers to rest from its labor, and unless given the opportunity will be altered structurally. Thus the heart, when repeatedly subjected to great strain, as excessive exercise, fever, or constant emotional disturbance, without appropriate rest, and the liver, kidney, or stomach constantly overworked by alcoholic or other excesses, become the seat of fatty, cirrhotic, or other changes.

While there cannot be absolute there can be relative or partial rest of the heart during life, and since we know that pressure within the heart is an important factor in the production of endocarditis, our first effort in acute rheumatism is to secure reduction of this pressure by rest, whether to prevent endocarditis or, once established, to combat it. Few more important observations have been made than the necessity of consigning the agile young patient suffering from acute rheumatism to the security of perfect rest. In valvular diseases of the heart the diet, avoidance of overexertion, guarding the emotional nature, are first and paramount principles of treatment. This does not mean that digitalis, its congeners, and tonics have no place, but that with them and often without them this rational rest is indicated; witness the Schott treatment.

In convalescence of a critical nature following acute disease we must not forget a fact, pointed out by Balfour, that "some trifling exertion undertaken before the heart has had time to reaccumulate sufficient energy starts an ingravescent asthenia from which there is no recovery." Remember in these cases, then, to insist on rest, and don't stimulate to death the unstable organism with medicines.

In no department of surgery and medicine is avoidance of, or discretion in, stimulation more necessary than in concussion of the brain — remember rest here; and in many cases of sunstroke the application of ice or cold baths is far safer and surer than antipyretics.

SOME CLINICAL EXPERIMENTS WITH MERCUROL IN CASES OF ACUTE GONORRHEA.

By Frederick Fraley, Jr., M.D.,
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Among the more recent germicidal preparations which have been advocated for surgical purposes is mercurol, an organic compound of mercury with nuclein, containing about ten per cent of mercury. It exists as a light, brownish-white, fine powder, and is soluble in water, especially when the latter is warm, but is insoluble in alcohol. Its reaction is slightly alkaline. It is employed in solutions of from one-fourth to two per cent, the diluent being normal salt solution, as this seems to add to its efficiency.

This germicide is being placed on the market by Parke, Davis & Company, and at my request they furnished me with the foregoing description, and also with a paper by Dr. Karl Schwickerath, the discoverer, from which I will quote, setting forth the advantages which Dr. Schwickerath claims for his new preparation.

Dr. Schwickerath says that the various inorganic salts of mercury, silver, and copper which have been so extensively used as antiseptics and germicides are not entirely satisfactory, owing to their irritating effect on the tissues. Not infrequently they exert such a devitalizing effect that the resisting power of the tissues is so lowered that they can no longer react to stimulus, and thus the healing process is retarded rather than advanced, defeating the very object for which these antiseptics are employed. The indolent ulcer, which so often results from the injudicious or prolonged use of powerful antiseptics, is a familiar example of this undesirable action.

"The explanation of this devitalizing effect lies in the fact that these antiseptics possess too great an affinity, chemically speaking, for the constituent parts of the animal cell, and that when an inorganic salt is brought into chemical relation with the organic components of tissue a considerable reaction takes place. For instance, if a solution of corrosive sublimate be brought in contact with a wounded surface, the metallic base is absorbed, while the acid portion of the compound reacts with the albuminous elements of the tissues, this reaction manifesting itself by coagulation."

Having these facts in view, Dr. Schwickerath thought that organic compounds of those minerals which had a lesser chemical affinity for the cell, while preserving the germicidal properties of the inorganic compounds, would be less irritating. Now it is known that some of the metalic salts will enter into chemical combination with certain proteid substances, and so it occurred to him to use nuclein, a nucleo-albuminous substance found in the nuclei of animal cells, for his experiments, as this, being a cell product itself, would not be so likely to cause reaction.

As a result of his experiments Dr. Schwickerath has produced soluble organic compounds between the salts of mercury, silver, copper, and iron, and the proteid nuclein, to which he has given the names mercurol, nargol, cuprol, and ferrinol, and of which mercurol, as might be expected, seems to be the most powerful germicide.

Dr. Eugene Smith, of Detroit, in a paper read before the Detroit Medical and Library Association, reported the results of his use of mercurol in diseases of the eye and ear, which were most favorable. A short abstract of this paper may be found in the *Journal of the American Medical Association* of March 4, 1899, page 501.

Dr. Burtenshaw, of New York, in reporting a case of exudative pericarditis, in the course of which a very severe cystitis arose, speaks very favorably of irrigations of mercurol, which almost immediately relieved the patient after all other remedies had failed, and which within four days completely cured the cystitis. (See *Medical News*, March 11, 1899, page 292.)

Up to the present time (May, 1899) I know of no other reports on the use of mercurol.

The ideal injection for acute gonorrhea is

one which, while exerting a powerful germicidal effect, would at the same time soothe the inflamed mucous membrane, and add to its resisting power; but as yet, unfortunately, no such valuable remedy has been discovered. The injections most employed are potassium permanganate and silver nitrate in weak solutions, but they have not proved themselves uniformly satisfactory, often causing decided irritation, and failing to materially influence the course of the disease. If, as is claimed, mercurol is a powerful antiseptic and does not irritate or devitalize the urethral mucous membrane, a valuable drug has been found for genito-urinary work.

In the cases of gonorrhea which were treated with mercurol the formula at first uniformly prescribed was a half-per-cent solution of mercurol in normal salt solution, to be used as an injection. Later it was found advisable in some of the cases which showed a tendency to linger to use a one-per-cent solution, and in one or two cases a two-per-cent solution was prescribed without causing any symptoms of inflammatory reaction. The one-half-per-cent solution is equivalent to a 1:2000 solution of mercury, a much stronger solution than would possibly be borne of the bichloride; and in fact I have injected into a healthy urethra a five-per-cent solution of mercurol, equivalent to a 1:200 solution of mercury, without causing more than a temporary tingling and slight burning sensation, which passed away in the course of less than an hour. It would seem, though, that it is never necessary to use a stronger than a two-per-cent solution, which apparently is quite powerful enough, without producing any disagreeable sensation. In but one case did a patient complain of the injection causing more than a momentary smarting.

The patients were instructed to inject every two hours, to hold the injection in for two minutes, and to report every day at the dispensary for microscopic examination of their discharges. These instructions they did not always follow, and it was with difficulty that they could be induced to return to the dispensary at all regularly, often remaining away for several days or even a week or more. In the latter cases they would usually say that they had felt perfectly well during the interval and not infrequently stopped their injections, only seeking the dispensary again when the discharge recommenced, owing to indiscretion or neglect. Four of my patients never returned, and another came back but once, reducing my number of cases under observation throughout the disease to fourteen. In order to discover if possible why these men had never come back to the dispensary, I endeavored to look them up, and succeeded in finding only one of my recreant patients. I learned from him that he did not come back simply because he had had no more trouble after his supply of mercurol was exhausted, and had no need for further treatment. On looking up my notes on this case I found that on his visit to the dispensary he had a profuse purulent discharge with gonococci present in the second degree—that is, in fairly large numbers—and was given the usual half-per-cent injection. Of the other similar cases I have no record, and though it would be quite unwarrantable to form the conclusion that they were equally fortunate, yet it leaves this as a possible explanation of their non-appearance.

Of the fourteen cases which I had an opportunity of treating for a somewhat longer period, six were entirely cured, being in all respects normal; three practically cured; three distinctly improved; and two were distinctly not improved, but were worse when they were taken off mercurol than when they were put upon it. In explanation of the foregoing statement, it is necessary to understand what we mean by practically cured.

The dispensary patient comes for the relief of one or both of two symptoms:

1. The urinary symptoms.
2. The discharge.

The discharge only annoys the patient when it is of sufficient quantity to soil his clothes, and if we reduce it so that there is only the so-called "morning drop," and relieve his urinary symptoms, he will consider himself perfectly cured and will not revisit the dispensary until he is again unfortunate, or until some indiscretion on his part lights up the old complaint.

In the cases I classify as "practically cured," there had been no gonococci present in the discharge for at least three visits, and the discharge itself was reduced to the "morning drop." Urination was of course normal in all of these cases when last under observation.

Before drawing my conclusions I intend to present a few cases, copied directly from my note-book, illustrating those in which the treatment was not successful as well as those in which the best results were obtained.

Case I.—The first that came under treatment was F. R., aged thirty, motorman, who came to the dispensary on March 14, suffer-

ing with acute gonorrhea. His previous history showed four or five attacks, the last one about a year ago. The history of the present attack was that he had been on a spree a week before, and a few days afterwards the discharge appeared. The discharge was quite profuse, mucopurulent, and gonococci were present in the first degree—*i.e.*, in large numbers. There was no increased urination, but the patient complained of chordee. Mercurol was prescribed, one-half per cent in normal salt solution, to be injected every two hours.

March 17. Urine clear; no symptoms; scanty discharge; no gonococci. Injection does not smart.

April 1. Very scanty discharge, no gonococci, but complains of frequent urination, without tenesmus.

April 14. Has had no discharge for some time, and has no symptoms. Says he feels cured. Mercurol stopped and patient given zinc chloride gr. iv to oz. iv to tone up urethra.

The patient I think we may fairly say was cured exactly one month from instituting treatment.

CASE II.—C. D., aged twenty-three, student. First seen on March 16. Previous history showed attack of gonorrhea two years ago, which lasted three months. The present attack had lasted several weeks, and had an incubation of four days. On examination a scanty mucopurulent discharge was found. No history of chordee or ardor urinæ. Gonococci present, second degree. Mercurol injection, one-half per cent every two hours, prescribed.

March 18. Very scanty discharge, no gonococci.

March 23. No discharge, no symptoms.

March 30. No discharge, no symptoms.

April 6. A very slight mucous discharge, no gonococci present, but many epithelial cells, showing that repair was well under way. No urinary or other symptoms. This case lasted only three weeks after treatment was instituted, and may be said to be practically cured.

CASE III.—J. S., twenty-four, student. Seen March 23. Previous history showed several attacks. The present attack was of a few days' duration, and the patient had a moderate purulent discharge with very abundant gonococci, first degree. Had no urinary symptoms or chordee. Given a half-per-cent injection of mercurol every two hours.

March 25. Very scanty discharge, slight ardor urinæ, but the injection does not smart. No gonococci in discharge.

April 5. No discharge, no urinary symptoms.

April 14. No discharge except morning drop; a few shreds in the urine; no gonococci.

April 20. No discharge for several days; urine clear; no symptoms.

The patient was loud in his praise of mercurol and declared it to be the best remedy he had ever used. His entire attack lasted only about four weeks.

CASE IV.—This case will serve to illustrate the severe tests to which remedies are subjected by intractable patients. O. B., twenty-three years old, a laborer, came into the dispensary on March 28 with a profuse mucopurulent discharge. His history told of several previous attacks, and the present attack had lasted a week, coming on one day after exposure. He complained of ardor urinæ and chordee, and the two-glass test showed a posterior as well as an anterior urethritis. The discharge contained gonococci in the first degree. An irrigation of mercurol, one-half per cent, was given, but no hand injection, and patient was told to report next day.

March 29. No posterior urethritis, the second glass being clear, but the discharge was still profuse, and gonococci abundant. Mercurol in half-per-cent injections prescribed.

March 31. Still a profuse discharge; gonococci, second degree. Mercurol raised to a one-per-cent solution.

April 4. Discharge continues, but is scanty; gonococci present in third degree. The patient acknowledges excesses in drink during the past week. No urinary symptoms.

April 6. Very scanty discharge, very few gonococci; no other symptoms.

April 13. Very scanty discharge; no gonococci; numerous epithelial cells. Given a two-per-cent injection of mercurol.

April 17. Profuse discharge, but urination normal, and no gonococci in discharge. Patient admitted having been off on a drunk.

April 22. No discharge at all; no symptoms; has been having sexual intercourse. Continued two-per-cent injections.

This case was certainly much benefited, though it is doubtful whether it could be considered cured owing to the patient's indifference, his excesses being sufficient to keep up the discharge notwithstanding treatment.

CASE V.—W. G., student, twenty-three

years old, came for treatment on March 28. Past history told of an attack of gonorrhea three years ago. His present condition had lasted three days, after an uncertain incubation. He had a moderate discharge, containing gonococci, first degree, but had no urinary symptoms or chordee. Put on half-per-cent mercurol.

March 30. Discharge has almost completely ceased; gonococci present in third degree. Patient has no unpleasant symptoms, and says the injections do not smart.

April 3. Very scanty discharge; only one or two pus cells containing gonococci discovered in the discharge. Patient says he feels perfectly well.

April 11. Patient has a very profuse discharge, soiling his clothes, but no other symptoms. The mercurol injections were raised to one per cent. No gonococci found.

April 13. Discharge entirely stopped.

April 17. The two-glass test shows a total urethritis with probable cystitis; the patient is urinating every ten minutes, and has ardor urinæ and vesical tenesmus.

Patient denied excesses, but said his occupation kept him on his feet every day for eight or ten hours. His discharge had ceased, and none could be obtained. An irrigation of half-per-cent mercurol was given, but next day showed no improvement, and the irrigations were changed to potassium permanganate, under which improvement was immediate and uninterrupted. In this case mercurol cannot be said to have accomplished much, although the discharge was stopped and the gonococci destroyed, for when the urethra and bladder were involved it seemed to have no effect whatever. It is quite possible that a stronger injection, two per cent for instance, might have yielded better results, but the patient was suffering so acutely that it was not deemed justifiable to continue mercurol, when it did not seem to be doing any good.

Case VI.—H. W., twenty-one years old, came to the dispensary on March 30 with an exceedingly profuse purulent discharge, swarming with gonococci. It seemed as though each cell was crowded to its utmost capacity with the microorganisms, none escaping infection. His previous history was negative, and regarding the present attack he gave ten days as the duration and two weeks as the period of incubation. He presented no urinary symptoms, nor had he been troubled by chordee.

April 1. Discharge about the same; gonococci still present, first degree. The injection does not smart and urination is normal. Mercurol injection raised to one per cent.

April 3. Two-glass test shows a total urethritis, and patient complains of ardor urinæ and vesical tenesmus. Gonococci are still present in the discharge, though only in the second degree, the discharge being scanty.

The injections were stopped temporarily, and an irrigation of mercurol one-fourth per cent was given, and copaiba and sandalwood capsules ordered by the mouth. The irrigations were continued daily, and the patient's condition rapidly improved. On April 6 I have the following note:

Patient much better; no ardor urinæ or tenesmus; a scanty discharge, mostly mucus, containing a few pus cells with gonococci, third degree, and some epithelial cells, showing that repair had commenced. Daily irrigations continued.

April 7. Still a slight discharge, but no gonococci detected in it. The urinary symptoms are absent. Injections renewed.

Patient did not return until April 10, when he came back with a profuse discharge and posterior urethritis, and a few gonococci present in the discharge, but without presenting any urinary symptoms. An irrigation of half-per-cent mercurol solution was given, and repeated next day.

On April 12 the patient returned in great distress with a profuse discharge, and a history of being obliged to urinate every few minutes, with great ardor urinæ and vesical tenesmus. He was given a half-per-cent mercurol irrigation, which treatment was continued for two or three days without producing any decided change in the patient's condition. Upon changing the treatment to irrigations of potassium permanganate, the patient began to improve, and in four or five days returned to nearly a normal condition, his discharge having stopped and his urinary symptoms being relieved.

This case was remarkable in two ways: First, the extreme virulence of the infection, and secondly, the apparently well advanced cure on April 7, being followed by the severe posterior urethritis on the 10th, which failed to respond to the mercurol treatment. The patient strongly denied any injudicious act which might have caused a relapse, and as he had been especially warned to take care of himself, I have no reason to doubt his statement. A possible explanation may be

based on the fact that the primary infection was so severe that the bladder itself might have become infected, and the condition have r mained latent during the period of irrigations, and started up when these were discontinued. The possibility of a cystitis complicating the second condition is also brought out by the fact that the first posterior urethritis, with pronounced urinary symp toms, yielded promptly to the mercurol injections. I have no other explanation to offer for the apparent failure of mercurol in this case.

In forming a conclusion of the value of mercurol in these cases of gonorrhea, a few figures will, I think, be the best way of making clear the results obtained. Cured, six, or forty-three per cent, in less than four weeks; practically cured, three, or twenty-one per cent, in three weeks; distinctly improved, three, or twenty-one per cent, in sixteen days; not improved, two—both of these cases were temporarily much benefited. A total of twelve cases, or eighty five per cent, benefited by mercurol.

Immediate effect on discharge within forty-eight hours: Stopped it completely in three, or twenty per cent; lessened considerably in seven, or fifty per cent; not perceptibly lessened in four. An improvement in seventy per cent.

The effect of mercurol on the urinary symptoms was prompt, and complete relief in all except the two cases reported as failures, and in these it relieved the original conditions, though it failed in the relapses.

The average duration of treatment was as follows: In those cured, twenty-six days; in those practically cured, twenty-one days; in those improved, sixteen days. Had all the cases been willing to be treated twenty six days, perhaps the percentage of cures would have been greater.

The best results were in the cases with simple anterior urethritis, and in the cases either of short duration (two to four days) or of comparatively long duration (ten days to two weeks), the explanation of the latter being that the disease had already exhausted some of its virulence.

In those cases which involved the posterior urethra the results were not so good, but this may be due to having used the remedy in too weak solution. Judging, however, from the rapid improvement of these cases under the use of potassium permanganate we may fairly say that the latter is the better agent for irrigations, while mercurol is superior for injections. It would seem, however, that an unirritating remedy which has cured patients of gonorrhea in a period averaging less than four weeks is one that is not to be despised, remembering that the length of treatment in the hands of good physicians averages six weeks before a complete cure is effected.

BILATERAL CHRONIC INTERSTITIAL MASTITIS CURED BY OPERATION.

By Edward Martin, M.D.,
Surgeon to St. Agnes, Philadelphia, and Howard Hospitals.

The subject of this report—a teacher, thirty-eight years old—of sound parents and without family taint, had been perfectly well till the early part of 1889, when she began to suffer from a dull pain, referred to the middle of the sternum, and sufficiently severe greatly to disturb her health and to interfere with her vocation. This pain was always worse at the menstrual epoch. At times it would be stabbing and lancinating in character, and shoot down the right arm into the fingers. In these most severe manifestations it was attended by slight dyspnea and marked pallor. It was diagnosed as angina pectoris by her attending physician. The breast gradually grew harder, but exhibited no nodulation of any kind; nor were the lymphatic glands in the axilla affected. The constant pain did not seem to be in the breast, though the latter was exquisitely tender on palpation. The patient steadily lost in weight, became anemic, and exhibited the typical facies and neuroses of one harassed by a constant pain. She had been subjected to all manner of treatment.

Gout, rheumatism, and syphilis had all been suspected, and a thorough course of appropriate therapeutic means had been tried. The symptom became steadily worse, so that in September, 1895, I removed her right breast, together with the axillary and subclavicular glands. This was followed by an immediate cessation of all pain. The section of the breast showed that it was almost completely transformed into scar tissue. No cysts were apparent anywhere, and but little of the normal glandular substance could be detected. The relief from pain lasted for four months. It then returned, but was referred to the left shoulder and arm, running down into the little and ring fingers. It grew steadily worse, was associated with exquisite

tenderness and increasing induration of the breast, and was undermining her general health. At the end of February, 1896, I resected the left breast, not opening the axilla; sections showed the same fibroid changes which were so marked in the other breast. There was immediate and entire relief from pain, and it has been permanent, since I have seen the patient within three days of this report. She has gained over fifty pounds, has been in perfect health, and has not lost over an hour's sleep or an hour's work in the last four years.

The etiology seems extremely obscure. Neither before nor since the attacks of pain have there been any manifestations of a gouty or rheumatic diathesis. There is no history of trauma, no signs or symptoms of syphilis.

The differentiation of this affection from mastodynia was dependent rather upon the induration than upon any other symptom, since the patient, being much wasted by her long suffering, was typically neurotic in appearance.

The distinction from malignant disease was somewhat difficult. The nipples were retracted, but the skin was not in the least adherent, nor were the axillary glands involved. This differential diagnosis — from malignant infiltration — was not made at the time of the first operation, though it was suspected for the reasons just noted, and because the hardening was general and no nodules could be felt. It was not till examination of the sections showed a mass of almost pure fibrous tissue that cancer was positively excluded.

The excellent effect of the double operation upon the general health makes the case worthy of record, since we have become habituated to a variety of surgical interference, practiced upon neurotic women, based upon obscure physical signs and resulting in no permanent benefit to the subjects.

ANESTHETICS AS A CAUSE OF PARALYSIS.

He who upsets an erroneous doctrine sometimes performs as important a service as he who establishes a new one. Such a service seems to have been performed by Mally, who has made a study of thirty-six cases of paralysis such as authors have been inclined to impute to anesthesia (*Revue de Chirurgie*, July). In ten of them he finds there was a central lesion that accounted for the paralysis; six of them were hysterical; seventeen others he classes as peripheral, and proceeds to investigate them *seriatim;* and the three remaining cases he sets down as reflex. It is noteworthy that of the seventeen peripheral cases, eight were observed by the author personally, and perhaps it was that fact that led him to make the investigation.

Mally rejects the idea that there is any connection at all between anesthesia and the hysterical and reflex paralyses. Those of central origin may be due indirectly to the anesthetic, which in a purely mechanical way leads to the rupture of a blood-vessel in the brain. The peripheral paralyses, which are rather frequent, are always, he finds, due to compression, and the anesthesia has only this to do with them, that it favors involuntary or accidental compression of nerve trunks or the roots of the brachial plexus in the course of an operation. There is no evidence, he says, to show that the toxic or depressing action of the anesthetic has anything to do with giving rise to paralysis, and any such action on the nervous system is only hypothetical.

As regards the treatment of these paralyses, it is both preventive and curative. During anesthesia the patient's arms should not be forcibly drawn up, and care must be taken that none of the limbs are allowed to hang over the edge of the operating table or suffer compression by the weight of the patient's body or by any ill-placed constricting band. As to the curative treatment, cases of central or hysterical origin present no different indications from those afforded by such paralyses in general. The peripheral paralyses due to compression may be treated with advantage by the ordinary procedures of localized faradization, and they should be applied as soon as possible. When the reaction of degeneration is present, however, localized electrization must be avoided. The wasting of muscles about the shoulder-joint that is apt to result from paralytic immobilization may be prevented by resorting early to passive motion of the joint. The grave reflex paralyses should not be treated by localized electrization, but the reflex irritability of the spinal cord may be moderated by sedative applications of static electricity, by the "electric wind," and, if it is indicated, by revulsion over the vertebral column by means of friction and sparks. — *New York Medical Journal*, Aug. 19, 1899.

The Therapeutic Gazette

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Leading Articles.

A NEW HYPNOTIC.

In that portion of the GAZETTE devoted to Progress will be found an abstract of a recently published valuable paper by Houghton and Aldrich about a new hypnotic substance known as chloretone, which is trichlor-tertiary-butyl-alcohol.

As set out in that abstract, this substance has already proved itself valuable in producing sleep in cases of nervous insomnia, in relieving nervous irritation, and in acting as a gastrointestinal sedative, allaying irritation rather than producing it, as does chloral. It gives comfort and rest without producing any of the disagreeable effects of morphine. If their researches are duplicated by others, it would seem probable too that chloretone may be found of value as a distinct analgesic, thereby differing again very markedly from chloral, which substance is only pain-relieving when given in sufficiently large doses to be distinctly depressing to the circulation.

On the few occasions in which we have had the opportunity of administering chloretone it has produced excellent results. In one instance of cardiac distress complicating parenchymatous nephritis and associated with marked insomnia, the administration of twenty grains of chloretone in the early evening produced comfortable sleep. In another case of gastric carcinoma it seemed to give the patient much relief, and still again, in a case of nervous cough, it seemed to act as a reflex sedative very effectually. The dose of chloretone varies from ten to thirty grains, and it is best given in small sugar-coated tablets of three grains each.

A HEROIC TREATMENT FOR SCIATICA.

Some of the readers of the THERAPEUTIC GAZETTE may remember that quite a long time ago there appeared a Progress item in our columns in which the results obtained by a Russian clinician in the treatment of sciatica by the application of hydrochloric acid were detailed. Since then a few of the medical journals in this country and abroad, chiefly the latter, have also contained reports of the institution of this method in obstinate cases of this intractable affection.

The latest instance of this character to which we have had our attention called is the report which is made by Dr. Purdee in the *Australian Medical Gazette* of August 21, 1899, in which he tells us of the results which he has obtained in a number of cases in which he has employed this method. After giving some of the literature on the subject, which is by no means voluminous, and pointing out that Gennates, a Frenchman, was perhaps the first to introduce this method, he tells us that in his own cases he painted pure hydrochloric acid along the course of the nerve and dressed the burn produced in this way with zinc ointment, afterward bandaging the leg. This one application gave the patient great relief. In other cases it was necessary to make two or three applications during a period of a fortnight, but he points out the fact that in some instances the superficial pain and discomfort are so severe that it is necessary to open the blisters which are produced and dress them with powdered opium.

From Dr. Purdee's experience it would seem that this method of treatment is not only efficacious but unusually rapid in its effect. Naturally the lesions which are pro-

duced in the skin are very considerable, and it may be regarded as an exceedingly severe form of counter-irritation, more closely allied, perhaps, to the old form of cauterization than the more superficial forms usually produced by the electric cautery which is used to-day. Indeed, the results produced by the application of strong hydrochloric acid must be as severe and deep as those caused by the at one time popular moxa.

While Dr. Purdee recognizes the fact that the treatment is heroic, he points out that most patients will submit to almost anything in preference to the agonizing pain of the neuritis, and he believes that the pain of the application of the acid is less than that which accompanies acupuncture.

Personally we believe that this form of treatment is not justifiable until all other methods have been tried without good results, and also that it is indicated in those patients with true sciatic neuritis rather than in those cases which are instances of sciatic neuralgia.

If any of our readers have cases in which they decide to try this method of treatment, we should be glad to hear of the results they obtain, whether they be favorable or unfavorable.

PHOTOTHERAPY.

Several years ago it was announced by Dr. Finsen, of Copenhagen, that he had devised a method of treatment for the eruption of smallpox by means of the employment of the chemical rays of solar light. His treatment of the inflammatory skin conditions characteristic of smallpox was based upon the fact that the chemical—that is, the blue, violet, and ultra-violet—rays of light are capable of causing an inflammation of the healthy skin, and therefore would be capable of still further aggravating inflammations which already existed. His idea was that if these chemical rays could be excluded, inflammatory and suppurative conditions could be to a great extent decreased or set aside; and recently he has gone still further and suggested that we employ these chemical rays for the purpose of treating superficial diseases of the skin dependent upon various forms of infection by concentrating the chemical rays of light upon the part. The so-called scientific basis for this proposition is that the chemical rays of light are known to possess bactericidal properties, that they are also known to cause distinct changes in the healthy skin, and finally, that these rays are known to be able to penetrate the skin.

While it is known that sunlight in general possesses distinct bactericidal properties, it is another question as to whether these properties depend upon the various rays of light as a whole, or whether only certain of the rays exercise this influence. Finsen believes from his researches that it is the chemical rays which are chiefly responsible for the destruction of microorganisms, and he finds that while the blue and violet rays possess this power especially, on the other hand the red, yellow, and green rays are useless. Therefore it is evident that for the greatest possible bactericidal influence we must have these rays to the entire exclusion of others if possible.

Finsen concentrates the light by means of an apparatus which consists of a lens about twenty to forty centimeters in diameter, composed of a plain glass and a curved one, and between these two disks there is a bright blue ammoniacal solution of copper sulphate. As the result of introducing the blue liquid instead of using solid glass, a considerable cooling of the light is obtained, the water absorbing the ultra-red rays, and the blue color excluding a considerable amount of the red and yellow rays, which is advantageous, as it is known that these three varieties of rays have strong heating properties, and as already stated, that their bactericidal properties are scarcely worthy of consideration. While these rays, therefore, are excluded by this apparatus, the blue, violet, and ultra-violet rays are but slightly impaired. The sunlight should be perfectly clear, not diminished by cloud or moisture in the air to any greater degree than is found on perfectly clear days, and is to be directed upon the part of the body which is diseased. In cases where it is not possible to employ sunlight, the electric arc light has been employed with a special apparatus. Even with the precautions that we have named there is danger of burning the skin with the heat rays, and therefore a small apparatus much like that which is used by naturalists in studying small marine animals on the circulating stage of a microscope is employed. This is placed upon the skin, and a small current of water continually circulates through it, while the pressure which the disk exerts upon the skin renders the part anemic, and therefore the chemical rays penetrate it much better than they would do otherwise. The area of skin which Finsen has treated daily is about one and one-half

centimeters in diameter, and as a result of the treatment it reddens, swells, and a blister may form; but actual local death has never taken place in his experience. A different area of skin is usually treated each day.

Finsen tells us that he has treated 350 cases of lupus vulgaris by this means, and as a result of such treatment he is of the opinion that this method affords more satisfactory results than any other which has been presented to us so far. So, too, in lupus erythematosus he has obtained good results, although, of course, the number of his patients has been very much less than in lupus vulgaris. Seven cases of alopecia areata have also been treated by this means, and as these are all manifestations of superficial skin infection, he believes that a wide therapeutic field has been opened to us. Certainly the apparatus is not so costly as to be out of the reach of physicians who frequently meet with these conditions, and while it behooves us to regard with some suspicion such novel and unusual methods of treatment and wait until they have given undeniable proof of their advantage before indorsing them, we have thought the matter of sufficient interest to bring it before our readers in this editorial note. A full description of Dr. Finsen's method, as described by his assistant, Dr. Bie, of Copenhagen, will be found in the *British Medical Journal* of September 30, 1899.

THE TEACHING OF PHARMACY IN MEDICAL SCHOOLS.

With the continual advances which are being made in the methods of teaching the various branches of medical study, many questions naturally arise for the consideration of those who are engaged in presenting to students information which will qualify them to be successful practitioners of medicine, and in the early days of the students' career it is an important point to decide how much pharmaceutical information should be presented to the medical student for his assimilation.

Years ago there can be no doubt that a considerable amount of information of this sort was of inestimable value to the practitioner, particularly to one that intended to follow his profession in the country districts. It was necessary for him to know the appearance of growing and dried medicinal plants, and it was also necessary that he should prepare from these plants the various medicaments which he knew by experience would prove useful in his practice. To-day this function of the physician both in the country and city has become entirely obsolete. The manufacturing chemist provides each practitioner with official products in solid and liquid form at small cost and of such reliability that it is futile for an individual to attempt the preparation of medicines for himself. For this reason a certain amount of the pharmaceutical information heretofore imparted to students is no longer necessary, and the facts which he wishes to know deal rather with finished products than with crude materials. It is important to the physician of to-day that he should know about pharmaceutical and chemical incompatibility; that he should not prescribe fluid extracts in watery solutions; that he should not order salts to be dissolved to the point of saturation in any of the official waters which already have in solution a certain amount of medicinal substances; that he should not order such large quantities of bulky materials placed in pills that these pills become boluses too large to be swallowed. In other words, he must know enough about pharmacy to be able to write with ease a prescription which will not only contain the ingredients needed by his patient, but which are capable of being put up in such a form as to be easily taken and to impress the patient with his ability to compound medicines. For this reason it is necessary that he should have a working knowledge of the means by which each one of the official preparations of the U. S. Pharmacopœia is prepared, and there is no better way of teaching him this than by allowing him to prepare a representative of each class during the early days of his medical college career. The mere manipulation fixes the method in his mind more firmly than any description or book study can do, and prevents him from making those ludicrous and oftentimes embarrassing errors which are met with by those who have not been fortunate enough to have such training in their student days.

Beyond this amount of pharmaceutical teaching we do not believe that it is the function of the medical college to go. If a physician desires to be thoroughly equipped as a pharmacist, he should gain such information from a college of pharmacy, for a full grasp of the character of information which we have outlined will certainly be sufficient for his necessities as a practitioner of medicine.

STERILIZATION OF THE SKIN.

Aside from the thorough mechanical cleansing with brushes, soap, and hot water, which is the basis of all the methods practiced for the sterilization of the surgeon's hands, there is a wide divergence of opinion as to the best way in which this end may be obtained. There is, moreover, much evidence to show that a thorough sterilization, and one which will last throughout a long operation, is not certainly attained by any of the methods commonly in use, and indeed is theoretically not attainable.

Of the chemical agents employed for the purpose of destroying microorganisms which have not been removed by mechanical means, alcohol, carbolic acid, and bichloride of mercury are in commonest use. Fürbringer states that alcohol used alone, without either carbolic acid or corrosive sublimate, is much more efficient than when these agents are combined with it.

Senger (*Arch. f. Klinische Chirurgie*, 59 Band, 2 Heft) shows that in so far as the staphylococcus aureus is concerned alcohol exhibits in culture media, at the most, simply an inhibiting effect, which is distinctly more marked in a fifty-per-cent solution than it is when absolute alcohol is used. When, however, alcohol is rubbed upon the porous skin which has previously been softened by water and an alkaline soap, it is not unlikely that it may form antiseptic combinations much more potent than the drug itself, analogous to formalin, which is produced by oxidation of methyl alcohol, thus explaining the fact that in spite of laboratory findings alcohol is an excellent disinfectant for the hands. The addition of carbolic acid to the alcohol forms a phenol-ether of weak antiseptic power, thus explaining Ahlfeld's and Mikulicz's findings to the effect that hands treated with alcohol and carbolic acid were much richer in germs than those treated by alcohol alone. Experiments with culture media showed that germs which were destroyed by a five-per-cent watery solution of carbolic acid grew richly when treated with a five-per-cent alcoholic solution of the same drug.

On the basis of both laboratory experiments and clinical experience Senger holds that the reaction method of skin disinfection yields by far the best results. By the term reaction method he designates the use of a series of chemicals which, when brought into contact with each other, undergo a reaction, with the production upon the skin, and in a nascent and hence more potent form, of antiseptic substances.

By the use of potassium permanganate, hydrochloric acid, and sulphurous acid there are formed free oxygen, chlorine, and sulphuric acid, each a prompt and energetic antiseptic. Moreover, the drugs used to accomplish the necessary reaction are in themselves potent antiseptics. Sulphurous acid seemed to act more actively and effectively than hydrochloric acid, which in turn is much more efficient than potassium permanganate.

The method of applying this reaction disinfection is as follows: The skin is first brushed for five minutes with an alkaline soap and water as hot as can be borne with comfort. It is next brushed for two minutes with weak alcohol (fifty per cent); next for two minutes with a warm two- to five-per-cent solution of hydrochloric acid; next for one minute with a half-per-cent solution of potassium permanganate; finally, with an eight-per-cent watery solution of sulphurous acid until the manganese coloration has entirely disappeared. This requires but a few seconds.

To determine the thoroughness with which the skin was disinfected by this method, Senger excised small pieces and placed them in culture media. Of twenty-four cases thus treated, six showed growths, giving seventy-five per cent of successes. Santer, who applied a green soap poultice for one hour, followed by brushing with alcohol, a five-minute rubbing with green soap, a one-minute rubbing with alcohol, a one-minute rubbing with three-per cent carbolic solution, and a one-minute rubbing with 1-to-2000 corrosive chloride solution, failed in about seventy per cent of his cases; while Lauenstein, who repeated his washings for several days, employing in the meantime wet bichloric compresses, failed in forty-three per cent of his cases.

A method similar in principle, but differing from the facts that sulphurous acid is not used at all, the permanganate is in much stronger solution, and oxalic acid is substituted for hydrochloric acid, has long been employed at the Johns Hopkins Hospital, and because of the admirable clinical results following its use, has become popular in this country. The addition of sulphurous acid would seem of service, since it is cheap, does not irritate the skin, and is in itself a powerful antiseptic, at least in so far as pus germs are concerned.

A great advantage of these reaction methods depends upon the fact that they are

infinitely less irritating than carbolic solutions of adequate strength, and to many persons are even less irritating than the corrosive chloride solutions which are commonly employed. Any method which leaves the skin of the hands fissured and chapped makes subsequent disinfection difficult if not impossible.

The ultimate solution of the difficulty attendant upon hand sterilization will, with little doubt, be dependent upon the general adoption of a thin rubber operating glove. The skin of the operative area will, however, be a possible source of infection till a method of destroying the deeper-lying germs has been devised more potent than any now employed.

Reports on Therapeutic Progress

ON THE SAFETY OF LUMBAR PUNCTURE IN CHILDREN.

In an editorial on this topic *Pediatrics*, in its issue of July 1, 1899, does well to point out that whenever a new operative procedure promises well, both as a diagnostic and therapeutic resource, and is well adapted for routine employment because of its technical simplicity, our wonder, excited at first because such a contribution to progress was not made long ago, becomes doubly great when we perceive how little headway has been made by the profession in doing justice to the innovation. The operation of lumbar puncture, devised by Quincke in 1891, has by no means become a popular procedure despite its many enthusiastic advocates. It is very evident that the technical difficulties, slight though they be, or a belief in the meddlesome and dangerous character of this form of operative interference, is held to more than offset the possible benefits which this operation might confer upon diagnosis and therapy. In revising the study of this subject to date, the fact must not be ignored that the operation of lumbar puncture has an independent relationship to the science of pediatrics. It is quite probable that in the case of adults the technical difficulties may be considerable, the field of usefulness circumscribed, and the danger of accident great, when compared with the results of pediatric practice.

Pfaundler, working in the clinic of Professor Escherich, of Graz (where so many important contributions to pediatrics have been made), has recently completed a series of 200 lumbar punctures in children. With regard to the safety of the operation, he reports no serious accidents, while pain, hemorrhage, and danger of infection proved to be insignificant. A review of the literature assures him that other observers have likewise been satisfied with the results which they have obtained in children. Mishaps of any sort seem to be isolated and not inherent to the operation itself. Pfaundler states that owing to the superficial position of the vertebral arches in the child, together with the relatively greater spaces between them, puncture is readily effected. The lowest interspace, or lumbosacral hiatus, is the locality to be chosen for the puncture. The original puncture should always be made with the child sitting erect, in order to tap the lowest point of the column of cerebrospinal fluid, and thereby to secure a representative drop of sediment. The serious accidents which have been reported in connection with puncture have either happened to adult patients or have been due to intentional puncture into the ventricle, which is a very different operative procedure from tapping the subarachnoid space.

So far as the utility of lumbar puncture is concerned it may be said that this operative procedure has a double field of usefulness, as it not only aids materially in diagnosis, but fulfils therapeutic indications as well. Under the head of diagnosis, the first step, according to Pfaundler, is to determine the subarachnoid pressure. When this is taken in the erect sitting posture it varies between 20 and 25 millimeters of mercury in health, while in chronic hydrocephalus or tubercular meningitis it may run up to 40 millimeters and even much higher. The difference between the pressure in the erect and recumbent postures is nearly one-half, owing to the disappearance of the hydrostatic pressure when the child lies down. After death the pressure falls by more than one-half, on account of the cessation of the heart's action. In a dead child, in the recumbent posture, the slight remaining pressure (about two millimeters) is due to the elastic wall of the subarachnoid sac. The subarachnoid pressure is therefore complex, and decomposable into vascular or vital, hydrostatic, and elastic. These studies in manometry, while of much interest and significance, are not adapted for routine clinical work outside of hospital practice. With regard to the clearness of the fluid obtained by tapping, the admixture of decomposed blood implies the

presence of an antecedent trauma or pachymeningitis. If the fluid is clear, all inflammatory affections, aside from tubercular meningitis, may be readily excluded. In the latter disease the fluid is always clear at the outset and may even remain so throughout, but there is often present a peculiar cloudiness or opalescence. In the same affection the formation of a peculiar coagulum upon standing is almost pathognomonic. Much may be learned from a study of the sediment, as in meningeal disease of any sort abundant pus and blood-corpuscles and desquamated endothelia from the ependyma are present. Another almost certain indication of the presence of tubercular meningitis is the occurrence of a large amount of albumin in the fluid. The bacteriology of the subarachnoid fluid comprises the constant presence of the tubercle bacillus, pyogenic cocci, and Weichselbaum's meningococcus in the corresponding disease, tubercular, suppurative, and epidemic cerebrospinal meningitis. With regard to therapy, the indications for puncture are to lower intracranial pressure and thereby remove symptoms due to pressure and irritation (headache, delirium, convulsions), and to drain away pathogenic bacteria and toxic products. There is no doubt that puncture has been successful in curing cases of epidemic cerebrospinal meningitis.

A FORMULA FOR SUBACUTE CONJUNCTIVITIS.

Ichthyol, 7 grains;
Oxide of zinc, 30 grains;
Lanolin,
Vaselin, of each 2 drachms.

—*Journal des Praticiens*, May 13, 1899.

ON THE TREATMENT OF TUBERCULOSIS.

The *Montreal Medical Journal* for July, 1899, contains an article by BLACKADER in which he gives the following details as to the management of tubercular patients. In considering the subject of diet of these patients, it is only necessary to emphasize the importance of the maintenance of nutrition as a factor in the treatment; tuberculous patients with active disease require a much larger quantity of food than those in health, to compensate for the increased waste of tissue; and if digestion is unimpaired, they can usually assimilate well this increased amount. The food as supplied at ordinary meal hours should be plain, well cooked, and nourishing, but at the same time savory, and varied in character. In addition to the ordinary meals it is often desirable to furnish these patients with some liquid, easily digested food between meal hours; a cup of hot coffee or tea containing a large proportion of milk, given the first thing in the morning shortly after awaking, relieves cough, assists expectoration, and at the same time counteracts the feeling of exhaustion which often follows the morning spell of coughing and distinctly interferes with the enjoyment of breakfast. At 11 A.M. a tumblerful of milk or beef tea, a cup of some nourishing but easily digested farinaceous food, taken warm, relieves the irritating cough, and tends to induce sleep. As an interne at Brompton Consumption Hospital, Dr. Blackader had frequent occasion to note the marked improvement in appetite and nutrition which followed the employment of simple stomach remedies, such as a mixture containing sodium bicarbonate with a simple bitter, or nitrohydrochloric acid with nux vomica. He says he is not surprised, therefore, to note that Kingston, in a recent article in the *Practitioner*, and Fowler, in his late work on Diseases of the Lungs, both emphasize the value of such simple medication.

Alcohol in general is of value only so far as it favors the digestion and assimilation of food. In patients who rapidly increase in weight, and who show any tendency to increase of pulse tension, it may favor hemoptysis, and is therefore to be avoided. Cod-liver oil is our most rapidly absorbed and most easily assimilated fat; it is, therefore, a food as well as a medicine of acknowledged therapeutic value. The majority of tuberculous patients take cod-liver oil with advantage, and many authorities acknowledge that a patient will gain weight while taking cod-liver oil, although he fails to do so under other medicines. Should it impair appetite, give rise to acrid eructations, or increase diarrhea, it should at once be discontinued. Hydrotherapeutic measures are among the most valuable adjuvants in the treatment of the disease. Cold compresses are extremely serviceable for the relief of many of the minor ailments of tuberculous patients; while the cold sponge or douche, taken in a regular, methodical way, is of great value in toning the vasomotor system, and preventing the tendency to "catch cold" easily, so notable in many tuberculous patients. The best chest protector, says Ransome, consists in well douching

the chest night and morning with quite cold salt water.

In regard to special medication, there is no occasion to repeat what must be well known facts. In Dr. Blackader's opinion, every accessory means of improving general nutrition should be taken advantage of, while all nauseating or depressing drugs should either be altogether avoided, or used in the most sparing quantities. Strychnine, as a stomachic and general cardiac and respiratory stimulant, will in many cases prove of great service. Creosote in moderate doses is occasionally of much service in checking fermentation in the alimentary tract; it also appears to be of decided benefit in cases associated with much bronchial irritation or secretion. Stubbert has employed ichthyol in keratin-coated pills with much success, especially in patients suffering from intestinal complications. He states that in a number of patients treated with ichthyol in daily doses of from six to ten grains, the results on weight, expectoration, cough, and the disappearance of bacilli were ten per cent better than those obtained from the employment of creosote or any of its derivatives. Dr. Blackader's own experience with the drug has been too slight, he states, to draw any conclusions.

SOME ASPECTS OF CHRONIC MALARIAL INFECTIONS AND THEIR TREATMENT.

W. H. Thomson, in an article on this subject in the *New York Medical Journal* of July 15, 1899, tells us that it has been a matter of common experience, especially in the treatment of malarial fevers in the tropics, that the action of quinine appears to be promoted by the simultaneous administration of various spices. The remarkable farrago of compounds in Warburg's tincture, the original formula of which is said to have called for seventy-six ingredients, doubtless owes much of its efficacy in chronic malarial disorders to its predominant proportion of spices. Dr. Thomson, therefore, has been accustomed for many years to prescribe powdered ginger along with quinine, in equal quantities, and he has felt convinced that he could get along with smaller doses of the quinine itself by adding the ginger in the treatment of our ordinary intermittents. He says he has known ginger alone, administered in a large dose in hot milk, to break up chronic ague of the quartan type when quinine had conspicuously failed. In a number of cases he has also added pulverized capsicum, a grain to four of quinine, and it is curious that the first dose of this combination often acts as a free purgative.

But cases of chronic and severe malarial infection are continually occurring in which quinine seems wholly to fail to cure the disease. Such a problem confronted him when his colleague at the Roosevelt Hospital, to whose service he succeeded on the 1st of September, told him that the soldiers in the wards had been there from the 17th of August, and that, though he had tried every form of administering quinine as to dose or method, as well as Warburg's tincture, and free administration of arsenic, yet the general results had been very unsatisfactory. In some cases large doses of quinine held the temperature for a few days, but only to be followed by relapses. The best results with this drug were in patients who had true intermissions, but these were a small minority, the fever with most of the others running a continuous but very irregular course, the predominant form of the plasmodium being of the estivo-autumnal variety. Dr. Thomson determined then to try the most ancient of known remedies against malarial poisoning —namely, opium—as an adjuvant to quinine. Forty-seven of the actively febrile cases, with temperature ranging from 103° to 106° F., were chosen, while check cases in equal number at first were left with the former treatment. He chose the camphorated tincture of opium as the most suitable preparation on account of its stimulant properties, and gave it in three daily doses of half an ounce each, with doses of fifteen grains each of quinine and of ginger twice a day.

As Dr. Thomson has already published a detailed account of his observations on the effects of the camphorated tincture of opium as an adjuvant to quinine in these Roosevelt Hospital cases, he quotes from it the following: "In twenty-two, or forty-seven per cent, of the number who took paregoric, the result was an immediate break in the fever—that is, the temperature fell to normal in twenty-four hours, nor did it rise again afterward. This effect was the more impressive because in every instance they had been unavailingly treated with quinine and Warburg's tincture for an average period of ten days previously without reducing the fever. Of the remaining twenty-five out of the forty-seven there were ten patients, or about twenty-one per cent, in whom it took from thirty-six to forty-eight hours to reduce the temperature

to normal. No relapse was recorded in the case of any patient who took paregoric treatment after the temperature was once reduced to normal."

Sir William Roberts, chairman of the British Royal Commission, appointed to investigate the opium question in India in the years 1893–94, maintains that the antimalarial properties of opium are due to its alkaloid, commonly named narcotine, but which he maintains should be termed anarcotine, as it has neither anodyne nor narcotic properties. The proportions of the two alkaloids in Smyrna opium are morphine eight per cent, narcotine two per cent; while in Bengal or India opium the proportion is morphine four per cent, and narcotine six per cent. In many cases, according to the voluminous statistics of British India surgeons, narcotine administered alone has been more efficacious than quinine as an antiperiodic. One of the most striking effects of the paregoric treatment in Dr. Thomson's hands was its unlooked-for antistuporous properties, so to speak. Instead of manifesting the usual symptoms of opiates, many of the actively febrile patients were roused by it out of the characteristic lethargy of the fever, and even in the weak apyretic patients with pronounced anemia the testimony was almost uniform that they felt better and stronger after taking it, the effects appearing the very reverse of narcotic and more like those of a cardiac and general nervous stimulant. He has noted analogous results also in private practice in the treatment of chronic malarial infection, notably when the patients complained of repeated headaches and general malaise, so that he has no hesitation in recommending this preparation of opium as one of the most trustworthy agents in the management of this common cause of prolonged invalidism in our climate.

THE TREATMENT OF SUMMER DIARRHEA IN INFANTS.

The *Medical News* of July 15, 1899, contains an article on this subject by CHAPIN which is apropos, in view of the articles published in the GAZETTE. Like all other writers on this topic he believes that in the dietetic treatment of summer diarrhea, as a majority of the cases consist largely of milk poisoning, all forms of milk must be temporarily withheld. Even the breast may be withdrawn in nursing babies until vomiting ceases. In the interval water may be frequently given, but in small quantities at a time, if the stomach tends to reject it. The common mistake is in giving too much nourishment at this time, as the infant seems to be weak and in need of support. It is not the food taken but that which is assimilated that supports, hence it is folly to force milk upon a baby at a time when the digestive powers are weakened, if not entirely arrested. Many a summer diarrhea would be stopped at the very beginning if milk were entirely withheld for from twelve to forty-eight hours.

When it is necessary to withhold milk for any length of time, other forms of nourishment may easily be substituted. One of the most easily procurable and satisfactory is egg-water. The white of an egg is thoroughly stirred in half a glass of cool water. This forms a pure and easily assimilable albumen-water. The only objection is its tastelessness, and Dr. Chapin has overcome this by the addition of about ten drops of aromatic spirits of ammonia. In case there is a tendency to vomit, this aromatic stimulant in small doses, as above, seems to check the stomach irritation.

Among other substitutes for milk may be mentioned thin gruels made from barley or wheat flour and cold whey. When the cereals are used, the starch may be easily dextrinized by one of the preparations of diastase that are now on the market. If cow's milk is withheld for several days or longer, mutton broth from which all the fat has been carefully skimmed makes a good substitute. Expressed beef juice with the fat removed and diluted with cool water makes a stimulating and nourishing drink.

When the acute symptoms have subsided and milk is resumed, it must be tentatively begun at long intervals and with high dilution. If a prescription to be filled at a laboratory were written it might call for fat, 1 per cent; sugar, 4 per cent; proteids, 0.50 per cent; or plain fresh milk may be diluted five or six times with sugar-water. By thus starting with a considerable reduction of the casein and fat, these solids may be gradually increased to a proportion that is proper for the infant's age and development. The difficulty of digesting the tough curd of cow's milk is a constant source of trouble. After trying various methods of overcoming this difficulty, a proper dilution of the milk with decoctions of the cereals as advised many years ago by Jacobi has yielded the best results in Dr. Chapin's hands. In hot weather a gruel made of wheat or barley flour, and

partially or completely dextrinized, will modify and attenuate the clots of casein in a favorable manner.

In a series of experiments recently made through the courtesy and with the cooperation of Prof. Graham Lusk at his laboratory in the University Medical School, liquid rennet was added to various preparations of milk and heated to 40° C. Equal parts of barley-water and milk gave smaller and more flocculent curds than equal parts of plain water and milk. A dog with gastric fistula was fed on consecutive days with these solutions, and the contents of the stomach withdrawn at the end of half an hour. The clots were finer and apparently more digested when the barley-water and milk was used than in the case of plain water and milk. Aside from the results of such experiments, the clinical effect of diluting with the gruels must commend their use. Babies are less apt to vomit tough, stringy curds, or to pass them by the bowel.

The medicinal treatment usually assumes less importance in direct proportion as the preventive and dietetic management are carefully followed. Indiscriminate and abundant drugging in this disease is now relegated to the limbo of the past—astringents, antiseptics, and opiates alike. The real indications for drugs are few and easily apprehended. As summer diarrhea is so apt to be of a putrefactive nature, all agree upon the necessity of completely clearing out the gastrointestinal tract as a necessary start in treatment. In most cases, when the physician is called, the stools are loose and there may be vomiting. By at once stopping all milk the stomach is soon emptied, and the principal indication is to clear out the bowel. If vomiting continues, drafts of tepid water may be administered, which, when rejected by the stomach, washes out that organ. Dr. Chapin does not believe it is often necessary to wash out the stomach with the tube. Sometimes when there is excessive irritation of the stomach, with much production of mucus, one washing out, however, will give relief. Dr. Chapin usually employs tablet triturates of calomel, one-tenth of a grain every hour, until six or eight have been administered. These small doses act as a sort of stimulant to the bowel, increase glandular secretion, and usually effectively clear the canal of its fermenting contents. The drug is also supposed to have some antifermentative effect. A good sized dose of castor oil is also effectual, and is followed by a sedative effect on the mucous membrane. If the stomach is very irritable, it may be difficult to administer on account of vomiting. Elimination may sometimes be hastened by irrigation of the lower bowel with normal salt solution. Mucus as well as fermenting milk may be thus removed. For those not accustomed to this procedure, a hard-rubber rectal tube is preferable, as the soft tube bends on itself on account of the length and marked curve of the sigmoid flexure in infants.

The drug that Dr. Chapin has found most useful in the summer diarrhea of infants is the subnitrate of bismuth in large doses. As far as he has observed the subcarbonate, salicylate, and subgallate of bismuth and betanaphthol bismuth have no decided advantage over the subnitrate, which is everywhere procurable. A baby of from six to twelve months can take from ten to twenty grains of the subnitrate every two or three hours. The insoluble quality of the bismuth and its sedative local effect make it most valuable. Irritation and fermentation, even under proper dietetic management, remain longest in the ileum and colon, and this tract is reached by the local action of the bismuth. Most of the so-called antiseptics have irritating qualities, and he does not think that even in antiseptic action they act better than large doses of bismuth.

It is manifestly impossible to put the intestinal tract in any condition that can be called antiseptic by the administration of drugs. Small doses of aromatic spirits of ammonia, ten to twenty drops, well diluted with water, seem to stimulate the mucous membranes and refresh the infant. Dr. Chapin gives alcohol very sparingly in these cases, as it seems to lower the digestive powers. In case of great weakness or collapse, from ten to thirty drops of whiskey may be given well diluted. Formerly he gave whiskey almost as a routine treatment in these summer diarrheas, but now it is used only for special indications and temporarily. If the discharges are profuse and exhausting and the baby sinks into a semistupor, with depressed fontanel, very free stimulation by whiskey and ammonia is indicated, as spurious hydrocephalus is thus ushered in.

There is one drug that was formerly much abused, and is perhaps not used enough now in proper cases, namely opium. It should never be given combined with other drugs; indeed, diarrhea mixtures of all kinds are to be deprecated. Opium is contraindicated until the

bowel has been thoroughly emptied of irritating contents, when the stools are scanty and foul-smelling, and when cerebral symptoms threaten. In cases, however, in which rapid peristalsis and profuse glandular secretion persist, a few moderate doses of opium are most valuable and may aid in saving life.

A CLINICAL STUDY OF TWENTY-FOUR CASES OF PARALYSIS AGITANS, WITH REMARKS ON THE TREATMENT OF THE DISEASE.

COLLINS and MUSKENS, in an article with this title printed in the *New York Medical Journal* of July 8, 1899, in discussing the treatment of this affection, state the well known fact that unfortunately no medicament has yet been discovered that has any influence in shaping the course or changing the outcome of this disease. Beginners in the art of therapy should keep this in mind, and thus spare themselves the trouble of attempting a cure by any of the drugs—and their name is legion—that have been recommended during the last half century. Energy of this kind and zeal for experimentation may be legitimately expended, perhaps, in trials with new drugs and other health-restoring measures. But it should not be forgotten that one is not always justified in elevating the hopes of the patient for recovery so high or so often that when the promises are not fulfilled their confidence is so completely shattered that only harm results. Despite this depressing estimate of the value of drug medication in the treatment of paralysis agitans, much can be done to alleviate the symptoms, to prolong the patient's life, and to make him more comfortable. As in all other nervous diseases, the dietetic and disciplinary treatment are of the greatest importance. Their value is very conspicuously seen in patients who early in the course of the disease are obliged to seek the shelter of a hospital. Although they are apparently and really not very ill, as wage-earners they are incapacitated. The regular mode of life, and all that is implied by hospitalization, is conducive to avoidance of wear and tear, and such patients continue year after year without any material change except slight increase of rigidity, tremor, and the other cardinal symptoms. The first indication, then, is for the arrangement of an uneventful life, free from care, strife, excitement, and sordidness, in a congenial environment and healthful climate. As a rule, a cool climate is far more grateful to these patients than a hot one. Residence in the country or in the suburbs, where a maximum of fresh air, sunlight, and sleep are to be had, with a minimum of demand on the mind and the body, meets the requirements, providing the vital force of the patient is not put to a severe test in withstanding extremes of temperature.

The diet should be of a simple, nourishing, strengthening kind, and close attention must be given to the functions of digestion and of absorption, so that the bodily weight may be kept at the level which was normal in health. The comfort of the patient can be materially added to by regulation of the bowels and other eliminative avenues. It is absolutely necessary that the patient have the personal care of an attendant or of one of the family. Disastrous accidents have not infrequently followed neglect of this precaution. The customary measures for the maintenance of general muscular tone and nutrition, so serviceable in many functional and organic nervous diseases, such as the application of water and electricity, the use of massage and gymnastics, are not so appropriate in this disease as they are in many others. Nevertheless, lukewarm baths, of from twenty minutes to half an hour's duration, are oftentimes very soothing to the patient, and have a tendency to make the muscular rigidity less dominant. Moreover, they contribute to a moderate feeling of well-being, and assist toward the realization of refreshing rest, for which the patient generally clamors.

In patients under forty years of age, the application of water from 90° to 75° F. from the hand of an attendant, followed and accompanied by friction, is sometimes serviceable in combating the distressing attacks of local and general heat of which the patient complains. This measure can be utilized daily with patients who react well after it. Reaction may be facilitated by having the patient wrapped in a hot blanket previous to the ablution, by having him stand in hot water during the bath, and by light massage and external heat following it. Massage, applied as stroking and light kneading, fulfils practically the same purpose and is utilized for the same ends. It tends to lessen the spasticity, to improve the general nutrition, and to increase the patient's capacity for rest. Papotement or percussion should be avoided. Swedish gymnastics have been warmly recommended by some writers, but Collins and Muskens state they have never

seen anything but detriment attend their use. The same may be said of suspension, which has been plentifully tried, and of nerve-stretching. They are mentioned only to be advised against.

A few years ago Charcot promulgated the fact that many of his patients with paralysis agitans were more comfortable during and after a short ride in a jolting vehicle. Assuming that the jarring and vibrations had a soothing effect on the nerve centers from which arise the tremor and rigidity, this clinician had a chair so constructed that the patient or an attendant could, by pushing a pair of upright handles backward and forward, communicate vibration to the entire body. Such a chair was in use for many months in Dr. Collins's clinic, but nowadays it subserves only a single purpose—a seat. Its usefulness is no greater than that of other vibratory apparatus, such as the one for the head, that have been constructed with a similar end in view.

Electricity has practically no place in the therapeutics of paralysis agitans, excepting so far as it is a potent agency for suggestion.

One of the most striking results of treatment in paralysis agitans is the temporary amelioration of all the symptoms on undertaking any new form of treatment. There is now under observation a man in the advanced stage of the disease who some years ago maintained that he was materially improved by some mechanical treatment given him by another physician. On inquiry, it was found that the "treatment" consisted of taking a few tracings of the tremor. Oppenheim states that he has seen considerable benefit follow the electric bath, and especially the application of the dipolar faradic current, but it is not improbable that the bath alone would have been accompanied by quite as much improvement.

The drugs that are in use for paralysis agitans, and from which some benefit in dissipating symptoms and fulfilling pointed indications may be expected, are hyoscyamus and duboisine, Indian hemp, opium, hematogenous agencies, such as arsenic and iron, and occasionally gelsemium and veratrum viride. Of these, the most important by far are the two first mentioned. Given hypodermically, which is the preferable way when possible, or by the mouth, they promptly mitigate the severity of the tremor, and have a pronounced tendency to relax the muscular rigidity. They are both powerful toxic agencies, and must therefore be given with care. Hyoscyamus (hyoscine hydrobromide, $\frac{1}{120}$ to $\frac{1}{80}$ of a grain) is said to have more advocates than duboisine, but personally Collins and Muskens prefer the latter. Its administration is not so apt to be attended by disagreeable symptoms, while the effects are coequal. The sulphate of duboisine should be given in from $\frac{1}{100}$ to $\frac{1}{60}$ of a grain, two or three times daily. On the accession of vertigo, cephalic paresthesia, disturbance of vision, nausea, dryness of the mouth and tongue, it should be stopped at once.

In many instances the administration of either of these drugs is followed by almost complete cessation of the tremor for a shorter or a longer time, but usually for several days. Unfortunately they apparently have slight effect in mitigating sleeplessness, amyosthenia, and the feeling of unrepose that so many patients complain of. When these become too burdensome for the patient to bear them unaided, opium or its alkaloids, preferably morphine, must be given, and especially to cause rest and sleep in advanced cases. Earlier in the disease reliance can be placed on the less baneful sleep-producers, such as sulphonal, trional, paraldehyde, etc., given in the same way as they are for idiopathic insomnia. The salts of salicylic acid, particularly those of sodium and potassium, have been widely recommended, especially during the last ten years, probably suggested by the patient's complaint of rheumatic pain and by the occurrence of other more characteristic phenomena of rheumatism. After thorough trial, Collins is convinced that such medication is quite useless. Considering the profound degree of depression in neuromuscular tone which patients with this disease have, it seems incredible that the bromides have ever been recommended or given, but unfortunately they have been. They are powerful agencies for harm, and the thought of their administration should never be harbored. In some instances, especially in those cases that are not benefited temporarily by duboisine or hyoscyamus, some mitigation of the tremor and rigidity may be obtained by the administration of gelsemium or veratrum viride in from three- to five-drachm doses, three times a day. These drugs have served more satisfactorily as symptom medicines than Indian hemp, which has the recommendation of Gowers, and which has been widely used.

THE TREATMENT OF CHOREA.

The *Archives of Pediatrics* for August, 1899, editorially discusses how we should treat chorea. It believes that the mildest case of chorea should receive prompt treatment, not of necessity, however, by drugs. Rest is the most important factor in the treatment of the disease. The child, no matter how slight the movements may be, should be taken from school at once. He should be allowed to come in contact only with his own brothers and sisters, and with them only for limited periods during the day. He should be removed from all excitement, and all reference to his condition should be studiously avoided. Above all things, he should be removed from the possibility of ridicule or thoughtless reference to his misfortune. The parents should be particularly cautioned not to punish the child for any act resulting from weakness or from the choreic movements.

In mild forms of the disease absolute rest in bed may not be advisable. But even in that condition the child should be kept in bed each day longer than is his wont in health. In severe and increasing cases absolute rest in bed should be insisted upon. As the disease improves the child may be allowed to be up for two or three hours, the daily period being gradually lengthened. The diet must also be regulated very closely. Sachs is certainly very near the truth when he says: "Milk and rest will do more for most cases of chorea than any other two measures." This treatment is most effective in the early stages, a time at which medication is least effective. It is entirely true that the rest treatment may be overdone, and judgment must be used, lest by its overcontinuance the monotony and lack of fresh air may counteract its benefits.

The question of exercise is one which demands sound judgment and must be decided largely upon the conditions present. When the disease is subsiding, exercise is certainly beneficial, but it should never be carried to the point of overfatigue, and exciting games of every kind should be proscribed. Upon the question of returning to school and resuming piano practice and more active games, it is wise to err upon the side of overcaution.

The tendency of chorea to recur should not be forgotten. Children who have once suffered from it should be watched for premonitory symptoms, it being remembered that the disease is far more common in the spring than at any other time of year. They should not be overcrowded in school, and should be particularly guarded against attacks of rheumatism.

The medicinal treatment of chorea is important, and when judiciously employed is of exceeding great value in controlling the disease, but the importance of combining with it the proper hygienic and dietetic management cannot be stated too positively. Differences of opinion regarding such treatment, it must be said, are less marked than in most other diseases. One drug is almost universally acknowledged to be of value—namely, arsenic. Its value in non-rheumatic cases is unquestionable. While its effects are not so pronounced in cases of rheumatic origin, its value even in them is usually great.

The dose of arsenic is frequently so small that no beneficial results are obtained. Beginning with three drops of Fowler's solution three times a day, it should be increased one or two drops a day until nausea or abdominal pain occurs or puffiness appears about the eyes. Treatment should then be stopped for twenty-four hours and then resumed, the dose being several drops below the highest previously given. The dose should again be gradually raised.

In many cases no improvement will be seen until slight constitutional effects are obtained. Unless distinct improvement is seen, the drug should be pushed to the point of tolerance. Twelve drops three times a day is usually the limit for a child of seven or eight years. Larger doses are frequently given, but they should be administered with the utmost caution. When these large doses have been reached, if no improvement is seen, other measures should be tried. Cases of multiple neuritis have been reported, resulting, it would seem, from excessive doses of arsenic. Its use in large doses demands the greatest caution and good judgment, and the patient while taking it should be kept under close observation.

Fowler's solution should never be given on an empty stomach. It should always be administered greatly diluted. It will thus produce very little gastric irritation. In prescribing the solution, it is wise to dilute it with one or two volumes of water, the dose being increased in equal proportion. Possible errors in measuring the dose thus become of less importance.

In rheumatic cases, particularly those in which acute rheumatism is present with the

chorea, salicylate of sodium is of great value Under such conditions it is usually more efficacious than arsenic. It should be given in full doses, and the rheumatic symptoms should be brought under control as quickly as possible.

The use of antipyrin occasionally produces very brilliant results, and as often fails entirely. In our own experience it has proved most effective in nervous girls in whom the rheumatic tendency was slight. In cases which apparently result more or less directly from overwork at school or from neurotic conditions, it often proves very effective.

When the sleep is broken, trional is an excellent and very effective drug. In cases of great severity, where the violence of the movements and the interference with sleep threaten to consume the strength of the patient, bromide and chloral, or even codeine or some other preparation of opium, may be required; but such drugs should only be used in cases of extreme necessity.

Anemia is such a constant accompaniment of chorea that it should always receive attention. Some preparation of iron is almost without exception indicated. The bitter wine of iron and syrup of the iodide of iron are particularly good preparations.

The natural history of chorea should not be forgotten in deciding upon the effects of treatment. After the third week the results of treatment are far more favorable than before that time, for the disease is then in its decreasing stage, or at least past the stage of increase. Failure to remember this fact accounts for many of the differences of opinion regarding the effect of drugs upon chorea.

THYROID MEDICATION TO HASTEN THE UNION OF BROKEN BONES.

There is perhaps some danger that, from having been contented for centuries with looking upon the thyroid gland as of no consequence, we may go to the opposite extreme of expecting it to accomplish things utterly beyond its power. In the *Écho Médical du Nord* of June 11, 1899, Dr. Lambret, chief of the surgical clinic of Lille and a railway surgeon, expatiates upon this proposition, and then comes down to the matter of the influence of the internal secretion of the gland on the osseous system. He is at some pains to recapitulate the leading observations on which we rest our present views of the part played by the thyroid in increasing the stature by its action, and of the relation of its defective action to dwarfing, rickets, cretinism, myxedema, etc. He recounts, in particular, that in 1895 Hanau and Steinlein reported to a congress held in Frankfort their observations of the tardiness of the union of broken bones in animals that had been deprived of the thyroid gland, and suggested, as a corrollary, the use of thyroid medication for promoting the formation of callus; also that in 1897 Gauthier recorded in the *Lyon Médical* his successful adoption of this hint in practice, a course which Quénu and Folet, too, found efficient, although the last named gentleman failed with it in one instance. There is good reason, then, to look upon thyroid medication as likely to prove of service in cases of delayed union of fractures.

But this is not all. There appears to be some ground, in the shape of a case reported by the author, for hoping that the same treatment may so hasten the union of broken bones as to shorten materially the time usually required for their repair, although he admits that no broad conclusions should be drawn from a single instance. The case was that of a man whose tibia and fibula were broken in a car-coupling accident. On the day after the injury he was put upon the use of capsules, each containing three grains of thyroid gland, three daily. On the seventeenth day union was found to be solid. All appliances were removed, and the man was allowed to get up. In these days of time-saving it is assuredly worth while to resort to Dr. Lambret's treatment in cases of fracture, and it ought not to take long to estimate its value.—*New York Medical Journal*, July 8, 1899.

THE CHOICE OF DRUGS TO DILATE THE PUPIL.

Jackson, of Denver, who is well known for his work on refraction and retinoscopy, in writing in the *Medical News* of August 12, 1899, upon this theme points out that the influence of certain drugs in producing dilatation of the pupil is so striking and so characteristic that they are mostly grouped under the name mydriatics. The most of these resemble each other closely in all their physiological actions and therapeutic capabilities. Yet several of them differ sufficiently in their influence to render the one or the other distinctly superior in certain cases; and one drug, cocaine, differs from the others so completely as to place it quite outside the group of true mydriatics, although it possesses a

power of dilating the pupil that is of the highest practical value. Along with their power of producing dilatation of the pupil (mydriasis), these drugs all possess in varying degree the equally useful power of causing paralysis of the ciliary muscle (cycloplegia). In this paper their action as cycloplegics will not be referred to except as cycloplegia may be a valuable adjunct or a distinct disadvantage in their use as dilators of the pupil.

As the basis for choosing the particular drug most appropriate for a particular case, we have their somewhat different physiological actions on the pupil. Ten or twelve minutes after a drop of a solution of atropine 1 to 120 (four grains to the ounce) is placed in the conjunctival sac the pupil begins to dilate. The dilatation increases rapidly; the pupil at first reacts well to light, but is less and less affected by illumination as it grows larger. In fifteen or twenty minutes after it begins to dilate the maximum size of the pupil that can be produced by atropine is reached, and it becomes quite fixed, failing to respond to any of the forms of stimulation that produce reactions in the normal pupil. For about two days this condition remains unchanged. Then the pupil very slowly becomes smaller, and at the same time its reactions gradually return, until at ten or fifteen days after the application of the drug it has again become normal Repeated instillations of such solutions prolong to any desired extent the period of complete dilatation, and recovery may be slower. Dr. Jackson says he has seen three full weeks elapse between the last instillation and complete recovery.

Reference is here made to complete recovery, the period of which can only be accurately determined when the drug is used in but one eye, the other being kept normal as a standard of comparison. Often in six or eight days recovery may be so far advanced that no great inconvenience is experienced from the remaining dilatation, and after that the recovery is so very gradual that some patients still think it not complete long after every trace of the action of the drug has passed away.

Dilatation of the pupil by atropine is accompanied by paralysis of the ciliary muscle and suspension of the power of accommodation. This begins with dilatation, reaches the maximum in one or two hours, remains complete for about two days, and then slowly passes off as the pupil contracts. With smaller doses of atropine the period of complete dilatation is shortened. A drop of a solution of 1 to 2000 does not produce complete dilatation and fixity of the pupil; and the return to normal will occur in eight or ten days. Of a solution of 1 to 500,000 a single small drop, containing less than one-millionth of a grain of atropine, will produce a perceptible enlargement of the pupil lasting from thirty-six to forty-eight hours.

The actions of the other natural mydriatic alkaloids—daturine, duboisine, and scopolamine—are almost identical, and closely resemble that of atropine. They are two or two and a half times as strong as atropine, so that used in solution of one-half or two fifths the strength they produce an equal effect. Recovery from their effects does not require so long as recovery from the effects of atropine. After complete dilatation by one of these drugs the pupil will return to normal in eight or ten days. They also cause complete paralysis of accommodation.

The artificial alkaloid homatropine differs essentially from any of the above in being much weaker in action, and in having a shorter period of recovery. A solution of 1 to 50 is required to produce complete dilatation and fixity of the pupil, and a single instillation of this does not produce complete paralysis of accommodation. Recovery is generally complete in two or three days. He has seen it complete in twenty-four hours, but in one reported case the period of its influence lasted longer than five days. Euphthalmine, an artificial alkaloid recently brought forward, is weaker than homatropine, and gives slightly greater dilatation of the pupils as compared with the diminution of accommodation that it produces. One instillation of a solution of 1 to 20 produces almost maximum dilatation, but not fixity of the pupil, and recovery is complete in about twenty-four hours.

In contrast with all the above is the action of cocaine; it never produces fixity of the pupil. After repeated instillations of strong solutions the pupil continues to contract on exposure to strong light, and with convergence, yet even a single instillation of a solution of moderate strength will cause with feeble illumination a wider dilatation of the pupil than can be obtained by any application of atropine, or the stronger mydriatics. Dilatation produced by cocaine passes away in about twelve hours, and its effect on the accommodation is very slight. The superiority of cocaine is most marked in elderly persons, in whom the other mydri-

atics produce only imperfect dilatation of the pupil. The influence of cocaine is well shown by its effect in enlarging the pupil, when fully dilated by one of the stronger mydriatics.

Bearing in mind the special characteristics of the different mydriatics, the author would have us consider which will best meet the needs of each particular condition, in which the use of a mydriatic is indicated. To dilate the pupil for ophthalmoscopic examination the indication is to dilate it quickly and widely in the dark room for as short a time as possible, and to cause the least inconvenience and impairment of vision afterward. This is particularly the case when there is reason to suspect some progressive lesion causing the impairment of central vision, as albuminuric retinitis, or retrobulbar neuritis with central scotoma. It has repeatedly happened that a patient suffering from one of these diseases has been met in whom for purposes of examination the pupil has been dilated by one of the slower mydriatics. The mydriatic caused immediate impairment of vision, and by the time the mydriatic influence had imperceptibly passed away the original disease had caused an impairment of vision which replaced that produced by the drug. It has usually been impossible to convince such a patient that his eyes have not been permanently damaged by the drops that were put in them. On the other hand, a mydriatic like cocaine, or a mixture of cocaine and homatropine, causes comparatively little interference with vision at any time, and its effect passes off so rapidly that the patient realizes that he has recovered from it before the more permanent loss of vision by disease has progressed so far as to be noticeable.

CYSTITIS IN WOMEN.

SHOBER contributes a paper bearing upon this topic to the *Journal of Medicine and Science* for August, 1899. He thinks that the treatment of these various conditions is quite simple and satisfactory if properly understood. The advice usually laid down in the books is misleading and not sufficiently positive. Dr. Shober says he wishes to emphasize very positively the opinion that some form of local treatment is indicated in almost all cases of cystitis occurring in women. Of course, the old maxim to avoid local treatment in the first stages of an acute cystitis is to be considered, but even in these cases Dr. Shober holds that if the symptoms do not yield to the usual constitutional measures in a very few days, one should not hesitate to begin local treatment.

Much benefit and great relief will result from a careful lavage of the bladder with any one of the mild cleansing solutions. The washing should be done under strict antiseptic precautions, care being taken not to overdistend the bladder. A very simple apparatus for the purpose is used by him. A pint jar with an opening at the bottom, having a rubber tube attached and a two-way catheter at the end of the tube, is filled with the desired solution. This may be a decinormal salt solution, or a solution of boracic acid one drachm to one pint of water, or in cases of gonorrheal cystitis, a solution of nitrate of silver one-half to one or two grains to the ounce. After the urine has been carefully drawn, a small amount of the solution, one to four ounces, is allowed to flow into the bladder. This is drawn off or allowed to flow off, and the process is repeated until the water comes away clear. In this manner an enormous amount of débris, shreds of mucus, and exfoliated epithelium can be washed out of the bladder. This proceeding, depending upon the severity of the case, can be carried out from one to three times a day. The patient should be confined absolutely to bed; the diet should be of the blandest kind (if possible a milk diet should be insisted upon), and large quantities of diluent drinks should be prescribed. Other measures, depending upon the cause, may be necessary, but as a rule the above treatment will be found efficient in most cases of acute cystitis.

The majority of cases of cystitis in women are of the subacute or chronic varieties. Depending as they do upon such a variety of causes, these cases require many forms of local treatment. By local treatment in this connection Dr. Shober says he does not mean direct application to the bladder walls, but treatment directed towards correcting the cause which has produced the cystitis. Uterine deviations and misplacements must be corrected, diseases of the ovaries and tubes and pelvic adhesions must be overcome, lacerations must be repaired, calculi removed, etc.

In addition to lavage of the bladder, we have another method of local treatment. This is the treatment by direct applications to the bladder walls through the endoscope. It is especially valuable in those

cases where the disease is localized in one or more spots or areas in the bladder. The patient being placed in the knee-chest or in an elevated dorsal position, the endoscope is introduced, and the bladder, having previously been emptied, fills at once with air. Its entire surface can then be carefully inspected through the endoscope by means of the head-light. Spots of local inflammation can thus be treated by applications of much stronger solutions than can be used as a wash. Often one or two applications are sufficient for the cure of cases which have long resisted all other forms of treatment. The most satisfactory solutions for most cases, especially of gonorrhea, tuberculosis, and so-called solitary ulcer of the bladder, are the solutions of nitrate of silver from five to twenty grains to the ounce. Occasionally much stronger solutions may be used, if applied with skill and the greatest care.

As a last resort in those cases of cystitis which do not yield to the measures indicated above, we are justified in establishing a vesicovaginal fistula, to furnish an opening for the continuous flow of urine, and to put the bladder at rest.

The patient is allowed to be about, wearing a large pad of some absorbent material to take up the urine. The pad should be constantly changed and the parts kept scrupulously clean. This is best accomplished by frequent washing and the use of thick zinc ointment. At the end of a few months the mucous membrane of the bladder is restored to a healthy condition, and the fistula may be closed.

THE CHOICE BETWEEN THE CÆSARIAN OPERATION AND ACCOUCHEMENT FORCÉ AFTER THE MOTHER'S DEATH.

The *New York Medical Journal* of August 5, 1899, speaking editorially of this matter, tells us that it is just possible that the advances that have been made in recent years in the technique of the Cæsarian operation, whereby it has almost been robbed of its fatality, have led to such a degree of readiness to resort to it in the case of the living woman, and a consequent utter lack of hesitation to perform it on the dead, as may prove disastrous under certain circumstances unless special precautions are taken. The danger was lately set forth somewhat graphically by Dr. Colle, at a meeting of the Société Centrale de Médecine du Nord (*Écho Médical du Nord*, June 25, 1899). Within a week of her expected confinement a woman fell dead, in his presence, with symptoms of pulmonary embolism. He went home hastily to obtain the instruments necessary for the Cæsarian operation. It was fifteen or sixteen minutes before he got back to the dead woman. Then he rapidly incised the abdominal wall and that of the uterus, tore open the fetal envelopes, and was fortunate enough to extract a child which, although cyanotic, soon began to breathe and was saved.

But an ugly rumor began its rounds; it was whispered that the doctor had killed the mother. This set M. Colle to thinking, and his reflections were not pleasant. He asked himself what material proof he should be able to offer that the woman had been actually dead at the time of the operation, in case he was accused; and prosecutions of physicians were so easily set on foot! At the meeting he mentioned these reflections and cited instances of women supposed to be dead who had regained consciousness during the Cæsarian operation. He was inclined, therefore, to prefer accouchement forcé in cases of the supposed death of the mother, for it could be performed at once, and the woman, if not really dead, be saved as well as the child, while the accoucheur's reputation was safe also.

M. Oui agreed with M. Colle that, after the mother's death, accouchement forcé was to be preferred to the Cæsarian operation, at least in private practice, for in the cutting operation the same precautions should be observed as if the mother were living, and that might really be the case. He cited Tarnier as having called attention to the very important consideration that it was always necessary to lose more or less time in obtaining the consent of the family to the performance of hysterotomy, whereas one could proceed at once to extraction *per vias naturales* and incur no reproach. M. Oui would use the forceps if he happened to have the instrument with him; otherwise there was but one resource — podalic version.

Perhaps the obstetrician of the present day may fairly be expected to go to a case of confinement prepared to perform the Cæsarian operation at short notice and with all the attention to detail that it requires, but certainly it cannot be required of him that he should be thus ready in the case of a woman who, being in apparent health, falls dead in his presence while he is making an

ordinary professional call on another member of the household, and is then ascertained to have been pregnant with a viable child—and this was M. Colle's experience. But the physician always has his hands with him, and can proceed instantly to dilate the cervix, rupture the membranes, turn by the feet, and extract—and that, too, without asking anybody's permission.

COTTONSEED OIL AS FOOD.

The Lancet of July 29, 1899, editorially considers this somewhat important subject in the following language:

"Because cottonseed oil has been employed by unscrupulous persons as an adulterant of olive oil and butter a certain amount of prejudice has been entertained against it as an element in dietetics. The ease, however, with which cottonseed oil saponifies would indicate it to be a useful food and an excellent substitute for more familiar fats. Indeed, there is some evidence in favor of the view that properly refined cottonseed oil is as wholesome as butter. However wholesome and nutritious, though, cottonseed oil may be, it should be sold under its right name and should not be allowed to masquerade under titles to which it has not the slightest claim. The late Dr. Campbell Morfit devoted considerable attention to the purity of cottonseed oil for edible and pharmaceutical purposes. Some important observations connected with his researches in this direction have recently been communicated to us in a paper by his daughter. In this paper it is stated that the exceptional capacity for assimilation which cottonseed oil possesses when chemically pure can be demonstrated by five years' experience of its use in severe chronic dyspepsia. Where the diet was strictly limited and the stomach was intolerant of any other fat, even of butter, the daily consumption of a small quantity of cottonseed oil produced results unattainable, it is said, from any other food. Further, cottonseed oil is much less nauseating than cod-liver oil, while it is free from laxative tendencies, so that it may be exhibited, as in the case of tuberculous patients, where excessive waste has to be combated without overtaxing the digestive functions. It has been suggested as a suitable food for growing children and as a lubricant in massage treatment. It would appear, however, that cottonseed oil which has been refined by drastic bleaching agents loses many of its useful qualities. On the other hand, by employing such refining agents as will act upon the impurities solely, leaving the oil itself chemically untouched, a bright golden oil is obtained possessing a sweet, nutty flavor and evincing no liability to become rancid. Such an oil is well adapted for edible and culinary purposes, and since the output of the oil in many parts of the world is enormous, it is surprising that the claims of cottonseed oil as food have not previously been more widely made known."

SOME REMARKS ON THE PATHOLOGY AND TREATMENT OF GOUT.

Dr. SYDNEY A. BONTOR, in an article bearing this heading published in *Treatment* of July 13, 1899, expresses the belief that the medicinal agents chiefly relied upon in the treatment of gout are colchicum, the salicylates, guaiacum, and the alkalies, with which piperazin, lysidine, and lithia may be included. There is no doubt that colchicum, although introduced into the treatment of gout by quacks, is of great value in relieving the pain of the acute attacks, but until recently no satisfactory explanation of its action had been found. Luff, however, has brought forward the suggestion that, by acting as a cholagogue, it prevents the glycocine from passing untransformed into the blood, and so acts directly as a preventive in the formation of uric acid; and in support of this he showed that administration of colchicum produced a diminution in the excretion of uric acid. Moreover, as its use is found by many to be beneficial in chronic as well as acute cases, this explanation seems a very reasonable interpretation of its mode of action.

The depressant action of colchicum upon the organs of circulation renders it necessary to observe a good deal of caution in asthenic cases.

Alkalies, especially salts of sodium, also have been almost universally used in the treatment of gout, especially in the acute attacks, because it was, and by some is still, supposed that the deposit of uric acid is dependent upon a diminished alkalinity of the blood. All writers who have especially studied the reaction of the blood—*e. g.*, Rumpf (*Centralb. f. Klin. Med.*, 1891) and Frendberg (*Virchow's Archiv*, Bd. 125)—have shown that its alkalinity is subject to very little variation, that mineral acids do not in the least affect it, and that organic acids in fairly large doses (acid. lact. ʒ iij to ʒ vj, or

acid. tart. 3 j to 3 ij, daily) reduce it only by about one-sixth, and produce no further reduction; while Jacquet (*Archiv f. Exp. Path. u. Pharm.*, 1892) was able to detect only a very slight diminution of alkalinity, even after the injection of acids into the veins of living animals. Notwithstanding this, the opinion is held by many that in gout there is a reduction of alkalinity, and that this increased acidity is the cause of the gouty deposit. Klemperer (*Deutsche Med. Woch.*, xxi, 1895) and Luff (Path. and Treat. of Gout, 1898) have shown that even in gout the reduction of alkalinity is very slight, and that in healthy individuals as great a reduction may also occur; while recent observations show that a greater reduction than takes place in gout occurs in such diseases as diabetes, acute rheumatism, etc., without any deposit of urate of sodium taking place. Moreover, Luff has quite recently demonstrated that the deposit of uric acid from serum does not take place until alkalinity has been reduced by at least fifty per cent by mineral acids, and seventy-five per cent by organic acids; and he points out that in order to produce such a diminution of the alkalinity of the blood it would be necessary to imbibe, all at once, two bottles of old port wine. But this is not sufficient either to indicate the use of port wine in the treatment of gout, or to contraindicate the use of alkalies, since the experiments relate only to uric acid; and we know that the deposit in gout occurs in the form of urate of soda, and not in the form of uric acid, although this point is frequently ignored in the consideration of this question. It is necessary, therefore, before we finally decide as to the suitability of alkalies in preventing the deposit of urate of soda, or dissolving it after it has been deposited, that we should ascertain the effect upon the solubility of this substance itself in serum whose alkalinity has been reduced.

The experiments reported by Sir Alfred Garrod seemed to indicate that some alkalies —the salts of lithia, potassium, and sodium— had some effect in increasing the solubility of biurate of sodium; but this observation was in opposition to that subsequently made by Sir William Roberts, and the recent investigations of Luff, carried out under conditions as nearly as possible representing those which would obtain if alkalies were introduced into the general circulation, support the conclusions formed by Sir W. Roberts, and are entirely opposed to the view of Sir Alfred Garrod. He found that neither potassium bicarbonate, potassium citrate, lithium carbonate, lithium citrate, sodium phosphate, piperazin, or lysidine, had any effect whatever upon the solubility of sodium biurate in serum, and that sodium bicarbonate actually reduced it to a certain extent. Moreover, by another series of experiments he showed that the conversion of sodium quadriurate into biurate is not at all delayed by an increased alkalinity of the blood; and therefore it may be assumed that the alkalinity of the blood has no effect upon the formation or the solubility of sodium biurate, and, consequently, that alkalies do not prevent the deposit of urate of sodium, nor do they sweep out any accumulation which may have occurred.

The objection to the alkaline treatment of gout was first raised by Sir William Roberts, and in support of his theoretical objection, based upon the experiments already referred to, he stated that "clinical experience on the use of alkalies speaks with doubtful voice;" but although their use does not receive universal approbation, it is nevertheless supported by a great weight of clinical experience, and with this we can fully agree. We have said that alkalies do not exert any influence upon the solubility of the uric acid in gout; but this is very far from saying that they have no value in the treatment of the disease. We have seen that the gouty uric acid formation is primarily due to defective metabolism of nitrogenous materials. Now, we know that some alkalies have a considerable influence upon metabolism and the improvement of the general nutrition, and consequently, by their remedial action upon the gastric and hepatic functions, they are able to bring about these good effects which have been attributed to them for so long; and therefore we may include in our prescription some such salt as citrate of potash or citrate of lithia, not with a view to altering the alkalinity of the blood, but with a view to improving metabolism, and so of diminishing the production of uric acid, and to stimulation of the excretory action of the kidneys, whereby the elimination of the quadriurate may be promoted.

But while this argument applies to those of the alkalies, such as potassium and lithia, which act upon digestion, or have a marked diuretic effect, it does not do so to all—for example, the salts of soda. Sir William Roberts has shown that the solubility of biurate of sodium in water is practically 1 part in 1000, but if any salt of sodium be introduced, the

solubility is greatly reduced, and water containing only 0.7 per cent of sodium salt exerts practically no power of solution; and he points out that all the sodium salts are alike in this respect, and also that the sodium salts present in serum reduce the solubility to 1 in 10,000, while serum from which the salts have been removed exerts the same solubility as simple water.

Luff has confirmed these observations, and therefore we may conclude that the introduction of sodium into the gouty system is to be avoided. Now, common table salt is a compound of sodium, and therefore Sir William Roberts has suggested that it should be excluded from the diet of the gouty; but to remove an article so important for flavoring purposes without providing an efficient substitute would be a serious matter, and he has suggested the use in its place of potassium chloride. In this connection Dr. Bontor says he may again draw attention to Dr. Luff's recently published experiments with the ashes of various vegetables, and his suggestions that a table salt should be prepared from this for use by the gouty in the place of the chloride of sodium now used. In view of the results which he has already mentioned, Dr. Luff suggests that a table salt might be prepared from the ashes of vegetables, and calculates that by the use of suitable vegetables and this table salt it would be quite possible to introduce into the body more than 0.1 per cent of mineral constituents of vegetables. The importance of this is at once apparent if figures are given for the solubility of sodium biurate: Plain water dissolves 1.1 per 1000; 0.1-per-cent solution of common salt dissolves 0.45 per 1000; 0.1-per-cent solution of spinach ash dissolves 1.90 per 1000. The salt solution thus has not half the solvent power of plain water, while the solution of spinach ash has four times the power of solution of common salt, and nearly twice that of water. The ashes of many other vegetables have also this increased power of solution.

Another series of drugs largely used in the treatment are the salicylates, but their use in gout, based upon their success in acute rheumatism, appears to be a mistake. It is true that a great increase in uric acid in the urine succeeds the exhibition of these drugs; but this increase of uric acid appears to be due not, as was originally supposed, to an increased elimination from the system, but to an increased production.

If this be so, then the use of salicylates, instead of being beneficial, would be harmful; and as the following evidence very clearly shows that it is an overproduction, and not an increased elimination, which is caused by salicylates, their use is distinctly opposed to our first object of treatment.

Careful examinations have shown that salicylates produce an increased elimination of uric acid in the urine in healthy subjects, and this increase must be due either to (1) an increased production, or (2) to a solution of gouty deposits. Now, all gouty deposits exist in the form of sodium biurate, but Luff has shown that solutions of salicylate in serum, in far larger quantities than could possibly exist in the blood, have no greater power of dissolving biurate of sodium than the serum itself; while, on the other hand, Bohland found that the administration of salicylates produced an increase of leucocytes. And if Horbaczewski's theory be correct, this would cause a considerable leucolysis, and as a result an increase of uric acid. Further, it is well known that salicylates unite freely with glycocine; and if our theory of the production of uric acid be correct, it is probable that this action of the salicylates is another cause of the increased uric acid excretion, since the glycocine carried to the kidneys by the salicylate unites with the urea to form the uric acid which appears in the urine. This increased production taking place with kidneys already incapable of eliminating their normal amount of uric acid would certainly tend to increase rather than allay the gouty condition.

Of guaiacum much difference of opinion appears to exist. It was originally introduced by Sir Alfred Garrod, and he states that he knows many hundreds of cases in which its use has been especially valuable. He advises its use for those cases where the gouty pains are relieved by warmth; and inasmuch as it is a stimulant to the liver metabolism, it is probable that his opinion of it as a powerful prophylactic is justified, and that guaiacum deserves a more permanent place among the remedies for gout than has hitherto been accorded it.

And, finally, as to the local treatment of gouty joints. During the acute attack, rest, elevation, and warmth are the essentials. The application of cold is most dangerous, on account of the frequency with which retrocedent attacks of vital organs may be induced; whilst the application of uric acid solvents is useless, since the deposit consists of biurate, and not of uric acid. During the

chronic stages hot baths, such as those of Bath and Buxton, will be of service, as also the application of very hot, dry air. These act by increasing the circulation in the vessels surrounding the affected joint, and so not only relieve the tension and pain, but also promote the absorption of the deposit.

ON THE USE AND ABUSE OF NITRATE OF SILVER IN THE TREATMENT OF OPHTHALMIA OF THE NEW-BORN.

HARRY FRIEDENWALD tells us in the *Maryland Medical Journal* of September 30, 1899, that the treatment of ophthalmia neonatorum must be carried out properly — in strict accordance with Crédé's method. A two-per-cent solution is to be used, and a single drop is to be instilled directly upon the cornea as soon as possible after birth. It will not do to either increase or decrease the strength of the solution. Thus Howe's study has shown that a one per cent solution reduces the percentage of ophthalmia only to 2 4 per cent, or about four times that of the standard solution.

The effect of stronger solutions and their more abundant use may be very disastrous, as is demonstrated by the following case: Last year Dr. Friedenwald was called to see an infant that had been born at 4 A.M. Soon after birth several drops of a three-per-cent solution was instilled, and in the early forenoon an attendant, believing that the treatment had not been used, instilled some more. The eyelids rapidly swelled, and when Dr. Friedenwald saw the child there was a large infiltrated area, embracing the lower half of the cornea and presenting the typical picture of a burn of the cornea. Under simple treatment (boracic acid salve) the inflammation subsided and the cornea cleared up to some extent. This was evidently not a specific ophthalmia; its onset, course, and appearance proved it to be a burn from the nitrate of silver.

In hospital practice no one questions the propriety of applying Crédé's method; in private practice it is rarely used. Is it not almost criminal neglect not to use it when the mother is known to have gonorrhea, or even when this disease is suspected? The conscientious physician who does not apply it in cases of severe leucorrhea, or when the mother has previously borne children that suffered with ophthalmia, will find it difficult to relieve himself in his own mind from blame if the infant he delivers develops ophthalmia.

Now in regard to the curative treatment of ophthalmia of the new-born with nitrate of silver. Here it is equally important to apply the remedy properly, but it is much more difficult, for accurate judgment is required, and hard and fast rules cannot be given. The solution is likewise usually two per cent. In mild cases it may sometimes be reduced to one per cent, and stronger solutions are rarely required. The same effect can be obtained with the two-per-cent solution as with the stronger solutions if it is applied for a longer time.

It is equally important to know when not to use the silver solution. During the first stage of ophthalmia, when the lids are greatly swollen, the conjunctiva is congested and glistening and exuding a thin, straw colored serum, with sometimes a fibrinous deposit covering the conjunctiva; during this stage, as von Graefe showed, the nitrate of silver acts harmfully. If applied at all freely the conjunctiva becomes covered with a dense membrane which cannot be removed, and which requires a number of days for its disappearance. But what is most serious is that this condition of the conjunctiva is frequently followed by corneal ulceration. It is necessary to curtail this state as much as possible, and this can be done by means of cold applications; cloths which have been left lying on a block of ice are placed upon the eye in rapid succession and continuously, day and night.

As soon as the serous exudate becomes purulent we begin the use of the silver solution. But it is well to apply the solution very gently at first, brushing it over the conjunctiva but once or twice, for if applied vigorously even now the false membrane may make its appearance. The solution is not to be dropped into the conjunctival sac as is frequently done. The lids are to be thoroughly everted and the solution penciled over the entire surface. Many surgeons neutralize the excess of the nitrate of silver solution with a little salt water. Dr. Friedenwald has been in the habit of taking up most of the excess with a bit of absorbent cotton, and he believes the small quantity remaining is rather a benefit than a source of injury to that part of the conjunctiva which cannot be reached directly.

During the first few days, while there is still much swelling of the lids, it is necessary to continue the cold applications. It is most

important to keep the eyes free from collections of pus by frequently separating the lids and washing out the eye with some mild solution, such as boracic acid solution.

The nitrate of silver is to be used once daily, and after the first application or two it is to be penciled over the conjunctiva until a thin milky layer is everywhere apparent; and it is well to follow this application with the cold cloths for half an hour or an hour to prevent too great reaction. This treatment is to be continued until the case is cured.

In that class of cases usually neglected in which a chronic ophthalmia is found, and in which the conjunctiva presents enormously enlarged papillæ resembling the cock's comb —in these we are sometimes obliged to use stronger solutions, three or even four per cent, but with great care and careful protection of the cornea.

CHLORETONE: A NEW HYPNOTIC AND ANESTHETIC.

HOUGHTON and ALDRICH, who are doing such good pharmacological work, have contributed to the *Journal of the American Medical Association* of September 23, 1899, a statement concerning the use of this new and valuable drug. They tell us that during the past few months chloretone has been quite extensively employed clinically. From their experience and that of numerous other observers they briefly outline its therapeutic properties as follows:

In cases of lacerated wounds, burns, etc., it is very efficacious in lessening pain when the injured parts are freely bathed in aqueous solutions of the drug. Owing to its antiseptic properties, it may be used independently as a surgical disinfectant, or if a strong antiseptic action is desired it can be employed in conjunction with mercuric chloride, carbolic acid, etc. Pain and uncontrollable vomiting of gastric origin may frequently be relieved by its internal administration. In one instance the drug proved especially useful in checking the persistent vomiting of gastric carcinoma. It may be possible that the drug will prove to be a useful therapeutic agent in preventing or controlling seasickness, vomiting of pregnancy, etc. Laboratory experiments quite conclusively show that it renders the mucous membrane of the alimentary canal insensible to irritants. Mustard, when given in an aqueous solution of chloretone to dogs, fails to provoke emesis, the animal usually going quietly to sleep. That the mustard produces the usual amount of irritation is shown by the fact that if on the following day the animal is killed and the intestine examined, its walls are found much inflamed, the parts coming in contact with the mustard in some instances being nearly vesicated.

As a hypnotic, chloretone is frequently efficacious in various conditions. Especially good results have been obtained from the exhibition of the drug in cases of persistent insomnia in the aged, and in cardiac disease with renal complications accompanied by high arterial tension. In many instances where morphine, chloral, trional, etc., have been unsatisfactory, chloretone has been successful. Morphine, as is well known, increases the excitability of the nervous system when administered in large doses, and is frequently objectionable on this account. Chloral is quite irritating to the stomach and depresses the heart's action. Chloretone does not possess any of these disadvantages, being only rarely followed by disagreeable after-effects. Occasionally, when large hypnotic doses have been given, drowsiness occurs on the following day.

In general the authors summarize their claims for this drug by stating that its action on the central nervous system is similar to the anesthetics and hypnotics of the fatty acid series without depressing the centers of the medulla; locally, it acts like cocaine, as a peripheral anesthetic.

It is too early to prophesy what position chloretone will take in medicine, but the results as a hypnotic and local anesthetic are very encouraging. As high as sixty grains has been given at one time without producing any untoward symptoms. From six to twenty grains given in tablets at a single dose, followed by a drink of water or milk, seems to be quite sufficient to produce the desired results. Possibly the drug will prove to be a useful general anesthetic when administered in large doses; or it may be given before chloroform or ether, and allow complete anesthesia to be produced by the use of a minimum amount of chloroform or ether. Perhaps such administration may prevent the annoying vomiting that so frequently occurs when a patient is being anesthetized.

DANGERS OF HEADACHE POWDERS, WITH TESTS FOR THE SUSPECTED INGREDIENTS.

The *Medical Record* of September 30, 1899, contains an article by SOBEL upon this prac-

tical subject. He reports a case of poisoning and points out that its history presents a clear case of poisoning by headache powders, with the following symptoms: Marked cyanosis, prostration, cardiac weakness with irregular heart action, coldness of the extremities, dilated pupils, anxious facial appearance, but complete consciousness.

The next question was, what is the particular offending ingredient? Two drugs only occurred to Dr. Sobel's mind, viz., acetanilid and antipyrin. Phenacetine, on account of its expense, did not enter into the consideration. However, to surmise is one thing, to know another; accordingly he took samples of the powder to the Good Samaritan Dispensary, where, with Mr. F. C. Schumacher, he made the following tests: Each powder weighed ten grains, was of a brownish-white color, presented a shining appearance when rubbed on the fingers, and had a sharp, pungent, bitter taste. The appearance and taste were suggestive of acetanilid. When added to water the solution became flocculent, showing the presence of some insoluble substance, perhaps acetanilid, certainly not antipyrin, which is very soluble in water.

Tests for antipyrin: (1) To three grains of the powder ten cubic centimeters of water was added, and then five drops of tinctura ferri chloridi; the solution became slightly colored. In the presence of antipyrin the solution would have turned a bright red. (2) To three grains of the powder ten cubic centimeters of water was added, and then two cubic centimers of pure spiritus ætheris nitrosi; the solution remained clear. In the presence of antipyrin the solution would have turned dark green, owing to the formation of isonitroso antipyrin. In making this test he emphasizes the use of pure nitrous ether, because otherwise even in the presence of antipyrin the test will fail. This test then is of double value, first in testing the presence of antipyrin, and secondly, the purity of the nitre.

Antipyrin having been excluded, acetanilid was tested for as follows: (1) Two grains of the powder was heated with one cubic centimeter of a concentrated solution of NaOH and three drops of chloroform added; an offensive, poisonous odor of phenylisocyanid (C_6H_5NC) was given off. This is the isonitril test and reacts to acetanilid. On the addition of bromine water the mixture became yellow-red, thus corroborating the presence of acetanilid. (2) Two grains of powder was heated to boiling with two cubic centimeters of hydrochloric acid, and an equal volume of a saturated watery solution of chlorinated lime added; this gave a turbid red or violet fluid, which turned dark blue on supersaturation with NH_4OH in excess. This is the indo-phenol reaction and speaks for acetanilid. (3) To two grains of the powder one cubic centimeter of a sulphuric and chromic acid reagent (chromic acid gr. ⅓, 10 Cc. of water, gr. xxx of concentrated sulphuric acid) was added; this gave an intense red color, which immediately turned blue and then faded. This test responds accurately to acetanilid.

Phenacetine was excluded by Mr. Schumacher with the zinc powder and tincture of chloride of iron test.

Thus, whatever other ingredients these powders might have contained, Dr. Sobel felt convinced that acetanilid was the disturbing factor and gave rise to the symptoms enumerated. It might be argued that in this instance the prostration and other symptoms were due to an overdose of the powders, and that had the original directions been followed nothing unusual would have occurred. It is, however, this very self-medication, this treatment without regard to idiosyncrasy or the underlying conditions, that is objected to.

All pharmacists under the existing laws have a perfect right to sell headache powders, proprietary or otherwise. It is highly advisable, however, that they prepare their own powders, know exactly how much of each ingredient they contain, and fortify them (if necessary) with cardiac stimulants such as caffeine, sparteine, monobromate of camphor, etc. No more than three grains of acetanilid should be dispensed in any one powder.

The indiscriminate self-administration of headache remedies composed of powerful aniline synthetics cannot, however, but work infinite harm, unless the public be warned against the great danger which lurks in this method of medication.

THE PNEUMONIA QUESTION.

Under this attractive heading WELLS discusses this important question in the *Journal of the American Medical Association* of August 19, 1899. He believes that in pneumonia the treatment should resolve itself into reasonable prophylaxis; in making the patient comfortable; in preventing excessive formation of toxins, in neutralizing them, in encouraging

their elimination and increasing the resisting powers of the system against their action; in preventing, or managing properly, the complications which may arise. Dr. Wells regrets that space will allow him to consider, cursorily, only a few of the many interesting and important questions here presented.

Bleeding in pneumonia has been discussed for so many generations and from points of view so diverse that he approaches the subject with reluctance, and it is only because he believes it a remedial resource which has no efficient substitute that he desires it to be considered at this time. It is not desirable that the former routine treatment of pneumonia by excessive bleedings should ever be restored to professional favor, yet Dr. Wells says he is sure that the physician who wholly abstains from venesection deprives his patient of a most potent remedy.

Venesection is not necessary in every case of pneumonia, and the patient, time, and conditions should be carefully selected. The very young and the very old, the weak and the anemic, should not, as a rule, be bled; nor those in whom evidence of obstruction of the pulmonary circulation, or of increasing toxemia, is not marked, but in others in whom these conditions exist the lancet should not be spared.

With an obstructed pulmonary circulation, there is a damming back of the blood into the right cavities of the heart and general venous system. The pulse is not rapid and has considerable tension; the breathing is oppressed, accelerated, and laborious; the patient is alarmed, and his anxiety is depicted in his countenance. This condition is usually met with only early and in plethoric and robust patients. In Dr. Wells's experience the relief afforded in such cases has been immediate and remarkable. Should the patient have passed into a dull or comatose condition with the first brunt of the attack, imminent danger is clearly present. Here successful treatment depends upon ridding the system as speedily as possible of the poisonous matters circulating in the blood and overwhelming the central nervous system, and free bleeding is the remedy *par excellence*.

In another and much larger class of cases the patient successfully withstands the first onslaught of the disease, but after a few days shows the indubitable signs of a profound toxemia, in a pulse which gradually increases in frequency while it loses in sustained force, in a high temperature, in restlessness and delirium, in sallowness or duskiness of the surface; and these cases demand not only venesection, but a cleansing of the blood as well. If blood is simply abstracted from the general circulation, the serum is quickly replaced by the absorption of fluids from the soft tissues. At this stage of the disease, however, these fluids are loaded with toxins and leucomaines, and bleeding alone may fail in its object as a blood-purifier. But if in addition to venesection there is introduced into the circulation a bland and non-toxic fluid, equivalent in quantity to that withdrawn, we not only remove a great and oppressive quantity of offending material, but we dilute that which remains behind.

The method of procedure is of importance. Dr. Wells's own practice is as follows: Venesection, to the extent of removing from four to sixteen or twenty ounces of blood, is done. If the symptoms of intoxication are profound, or if it is clearly evident that the patient will, and does, bear well the loss of blood, the bleeding should be a free one. If, on the contrary, opposite conditions prevail, the amount of blood withdrawn should be small. Indeed, in some of these cases, with profuse perspiration, free excretion of urine, or perhaps diarrhea, bleeding may be omitted.

Simultaneously with the venesection, or immediately before or after, a solution, in distilled water, of chloride of sodium .7 per cent, chloride of potassium .23 per cent, and chloride of calcium .03 per cent, is injected, subcutaneously, in quantity approximating that of the blood withdrawn. Often four or six ounces may be injected later, and repeated at intervals, according to the effects produced. The injections are multiple and are made with a large-bore needle, preferably by gravity, into the subcutaneous tissues of the chest. The fluid is warmed, and ordinary precautions are taken. In some cases high enemata of the saline solution may be substituted for the subcutaneous injections, and, when well borne and retained, with equally good results.

If this method is followed as detailed it is quite free from danger. Dr. Wells has employed it in a number of cases and has seen absolutely no undesirable results — no chill, no rapid rise nor profound fall of temperature, no restlessness nor excitement, no collapse. On the contrary, there has usually followed a gentle or profuse, but warm, perspiration, a free action of the kidneys, a clearing of the intellect and an abatement of cerebral excitement, a lessening of dyspnea, and an improvement of the circulation.

Such has been Dr. Wells's experience when these measures have been resorted to in the early stages of the late toxemia; but if they have been delayed until evidences of approaching death were manifest, the effects have been negative. In the one case the results of treatment have been satisfactory, and a fair proportion of patients have recovered; in the other they have, with this as under every other plan of management with which he is acquainted, uniformly died.

From first to last in pneumonia the vasomotor system, as reflected in the state of the capillaries, must be given assiduous attention. Failure in this direction, with capillary paresis, should be anticipated and met with efficient doses of digitalis and strychnine, and an occasional carefully gauged dose of morphine.

In conclusion Dr. Wells says that in spite of the fact that the ordinary management of this affection in times past—recent as well as remote—has been, on the whole, signally unsatisfactory, and that that in vogue to-day is scarcely a promise of the advances of to-morrow, he believes that the immediate future will demonstrate pneumonia to be certainly a preventable and largely a curable disease, and that in this field the morning light of the twentieth century will see every reasonable hope of medical optimism abundantly realized.

THE TREATMENT OF PLEURITIC EFFUSION IN CHILDHOOD.

The *British Medical Journal* of August 19, 1899, contains a paper by MAGUIRE upon this subject, in the course of which he says that having determined that an effusion is serous and not purulent, we must deal with the question of how it must be treated in a child. Positive tension in the thorax is a very important guide, though, as Dr. Maguire states, it rarely occurs in children provided that the effusion is simply serous. It is detected and estimated by bulging of the intercostal spaces and by depression of the diaphragm and its underlying viscera. But displacement of the heart is no evidence of its presence. The heart can be displaced by even a small pleural effusion, and we must not be misled by this, nor deceived into thinking that because, as it is still often expressed, "the heart is pushed to the opposite side," there must be immediate operative interference. The heart is scarcely ever "pushed;" it is simply drawn by the retraction of the opposite lung and of the mediastinum.

But depression of the liver, stomach, and spleen is a different matter; and further, such depression is generally accompanied, even in children, by engorgement of the cervical veins and great dyspnea. Then, undoubtedly, aspiration is the best treatment, and must be pursued, whether the fluid withdrawn be blood-stained or not. Dr. Maguire says that in the preliminary puncture the aspirator, and not the ordinary needle, should be used. If there be no such signs of positive tension as he has described, and the fluid withdrawn is deeply blood-stained, he thinks it is better to stop the aspiration at once. To pursue it would only draw more blood to the inflamed lung, which probably underlies the effusion. Suppose that the effusion be only moderate in amount, that there be no signs of positive tension, and that the fluid be not unduly blood-stained—the usual conditions under which such effusions are met with—here, again, he says that aspiration is best not proceeded with. For once purely medical measures are the best. Dr. Maguire is no advocate for any attempts to draw off the fluid by artificial channels—as, for instance, the kidneys—say by the aid of diuretics. There is no need for any such course. Moreover, the resistance of the child's lung is so great that, even after a long collapse, it will expand normally, thus differing from the lung of the adult. But this depends greatly upon the maintenance of the general health.

Fortunately, in children tuberculosis is rarely the cause of pleuritic serous effusion. Sir William Jenner stated that it was the frequent cause of empyema, and recently Netter has denied this on the ground of bacteriological examination. But Netter has also trusted simply to microscopic examination, and has not applied the test of inoculation to the fluid obtained from his cases; therefore his results are by no means reliable, and in the case of purulent effusions Sir William Jenner's dictum must be considered unshaken, supported as it must be by the clinical experience of all. This, however, refers only to purulent effusions. With regard to serous effusions, one may safely hold the opinion that tuberculosis is rarely present in such cases as they occur in children. Yet there occur cases of serous pleuritic effusions in which there is undoubted evidence of the presence of tubercle in the lungs, and in such cases he strongly advises non-interference with the effusion. The

same rule applies to adults also, and he hesitates to give a conjecture as to its rationale; he says he will merely state what has been supposed. It has been thought that the relief of the lung from the presence of the effusion may lead to increased circulation through the lung, and therefore to increased activity of tuberculous inflammation. This seems a very improbable view for many reasons, which need not be discussed here. Another idea is that in the effusion from a tuberculous lung there may be an antitoxin, the result of the cultivation of the bacillus on human soil, and that the gradual absorption of such antitoxin prevents the further development of the tuberculous process. For this view we have no proof, but the theory seems well worthy of further investigation. Let us at present be content with the fact, of which Dr. Maguire says he is well satisfied, that it is better to leave tuberculous effusions alone, provided that they do not produce signs of positive tension amounting to pressure, which would endanger the functions of the other thoracic viscera.

Next we must think of the treatment of such simple inflammatory but non-tuberculous effusions as we have determined to not warrant aspiration. To maintain the general good health by good feeding and hygiene is the great point, but the disappearance of the fluid may be hastened by the administration of gray powder. This is exceedingly old-fashioned treatment, and was much cried down by Sir William Jenner. Nevertheless, Dr. Maguire is of the opinion that our forefathers were right in its use, though possibly they carried it to excess. Judiciously employed, he has seen it act powerfully as a remedial agent, and with no bad effects. He sees no reason to insist upon absolute rest for the young patient who has a pleuritic effusion, provided that the inflammatory process has subsided, and that there be no signs of positive tension in the thorax. Judicious open-air exercise is sometimes of great use in removing such effusions, and probably acts by increasing the general nutrition. Naturally the same advice cannot be given to adults, for in them there is a greater risk of heart failure.

So far Dr. Maguire has only mentioned simple serous effusions. But if our initial puncture—or aspiration, as he recommends—should show the presence of pus, what, then, should be our procedure? He would advise that in the first place we should try to find the source of the infective material, and still further to take warning from the presence of the pus to prevent its formation in other cases. He says he wishes here to give a special word of warning. On no account would he decry the operation for the removal of adenoid growths of the nasopharynx. There can be no doubt in the minds of any of us as to the need of such operation at times for the mental as well as physical well-being of the patient. In regard to the operation, he finds fault with the surgeons mainly, and almost wholly, because they are not sufficiently thorough in their removal of such growths, and fail to clear the parts of the pharynx which lie near the base of the skull, and which therefore interfere with mental development. But more judgment is required in choosing the time for such operation, and more precautions are necessary to insure asepsis. There can scarcely be conceived a surface more capable of septic infection than the newly scraped lymphatic tissue left after such an operation. Recently Dr. Maguire was called in to see a case where he prevented such an operation, proposed to be performed actually at the time when the patient was suffering from suppurative inflammation of the middle ear. How could the young patient under such circumstances fail to develop a highly septic wound? He says he mentions the matter here because empyema sometimes occurs as one of the septic manifestations—and by no means the most serious of them—caused by this operation.

Cases will arise at times in which the ordinary and best operation for empyema—incision—cannot be performed. For instance, the patient's friends may object to operation; and again, empyema may present itself on both sides of the chest, and it is almost impossible to open both sides and disable both lungs. What are then the dangers which may attend leaving the empyema alone, and also those which may result from treating the empyema by repeated aspiration? There is no doubt that empyema will sometimes, but rarely, get well by resorption and with no accidents. In the child, too, perforation of the abscess into the lung is not common, and perforation through the chest wall is still rarer. The great danger, then, is that of septic infection, causing acute inflammation elsewhere, or gradual interference with the body health, and marasmus, with death from asthenia. Some of these dangers, however, can be avoided by repeated aspiration, and the patient thereby restored to health. As an in-

stance of this Dr. Maguire mentions two cases: one was a child whom he saw in consultation with Dr. Reid, of Lambeth. The parents objected to operation, so Dr. Reid aspirated three times, drawing off about thirty ounces of pus on each occasion, and the child quite recovered. Again, he has a child under his care at the Brompton Hospital in whom he diagnosed empyema, and asked Mr. Godlee to operate, but before he could do so an empyema developed on the opposite side. One empyema was incised, the other being treated by aspiration, and the child is doing well.

Two other conditions of pleural effusion Dr. Maguire mentions briefly to complete the materials for discussion from the medical standpoint; these are effusion, generally purulent, encysted between the lobes of the lung, and effusion, purulent or serous, as it accompanies pneumothorax.

Effusion between the lobes of the lung is more common on the right side, because here there are three lobes instead of two, and its diagnosis, by no means an easy matter, is of great importance for treatment. Such an effusion shows itself mostly by mere simple pleuritic signs limited to a spot near one of the interlobar fissures, and with only very obscure signs of fluid effusion. Exploratory puncture is very uncertain in its results, for, as he has not infrequently seen, there is only one limited area through which the needle can reach the fluid. Yet it is always desirable to get at the fluid, whether serous or purulent, before it bursts into either the general pleural cavity or a bronchus. The knowledge that such a condition may be present, coupled with the finding of the limited pleurisy described, and possibly the absence of pneumonic signs, will often lead to its detection. In such cases there is rarely any displacement of the heart, for the locality of the effusion tends to prevent it interfering with the dynamics of the chest. Diagnosis here is everything, for treatment must be pursued according to the usual rules.

Finally, Dr. Maguire mentions the effusion which accompanies pneumothorax. Commonly this is purulent, but sometimes serous. He says he will not go further into the question of its mechanism than to refer to a very curious thing. By reason of the generally prevailing negative tension in the thorax, pleural effusions are usually removed from the influence of the force of gravity. So far as he knows, this is the only instance in nature where such a thing occurs, but when air obtains access to the pleural cavity matters are very different. An ordinary effusion does not obey hydrostatic laws when the position of the patient is changed. An effusion with pneumothorax behaves just as any other fluid would do, and this no matter what the character of the effusion may be, though naturally the thinner the effusion the more mobile it will be.

Dr. Maguire says he cannot too strongly impress the importance of thinking over and understanding these curious conditions of dynamics as they exist in the thorax. Such a consideration led to the invention of the aspirator by a physician, and physicians may reasonably expect to be allowed to use that instrument.

Dr. Maguire says that pus is best removed from the thorax. But he makes a little exception in the case of a small effusion of pus, and *a fortiori* one of serum, accompanying pneumothorax. Pneumothorax with or without effusion may well be left alone if its tension is not very high. Pus in the body is bad, but in the condition to which he refers he thinks the operation for its removal is worse. Pneumothorax is not a common condition in children, and he imagines none of us can report many cases from personal experience. But in adults he had an exceptional experience recently, for five cases of pneumothorax were at the same time present in his male gallery at the Brompton Hospital, and all with more or less effusion. As regards the effusion and the pneumothorax, all the cases were due to tuberculosis, yet four of the patients became quite well for all practical purposes, while one, having recovered from his pneumothorax, is now dying from coexistent tuberculosis. Not one of these patients was treated surgically.

INTESTINAL ANTISEPTICS.

BURNEY YEO, in the *Medical Press and Circular* of August 30, 1899, in considering this theme, points out that intestinal antiseptics and evacuants have for a long time been in use without the rationale for their use being known. The old blue pill, together with the black draught which dissipated the "spleen" and the "vapours" for our forefathers, are instances to the point. Dr. Yeo considers the subject under four headings: (1) What is the scope of antiseptics? (2) What is the scientific basis for their use? (3) Under what conditions are they applicable? (4)

What are the means of applying intestinal antiseptics?

With regard to the first question, the medical use of antiseptics is different from the surgical use. The surgeon nowadays aims rather at asepsis than at antisepsis. But in medicine, as concerned with the intestinal contents, asepsis is impossible. We must if possible prevent, or at any rate antagonize, autointoxication—*i.e.*, intoxication of the organism with the products of digestion.

With regard to the second question, it must be remembered that certain bacilli are only harmful in the presence of putrefaction or other abnormal condition. The bacillus coli, for instance, is a normal inhabitant of the intestine, and under ordinary circumstances is harmless. If, however, the bowel becomes abnormal in any way owing to catarrh, long-continued constipation, or sometimes injury, the bacillus coli seems to take on a virulent action. When associated with the bacillus typhosus it has the power to intensify the virulence of the latter. The experiments of Dieulafoy with the bacillus coli when taken from an appendix, the cavity of which had become shut off from the rest of the bowel, and the same organism when taken from the normal mucous membrane of the bowel, show that the former is virulent, the latter not so. As, then, the virulence of intestinal bacteria depends upon their environment, so by modifying that environment it is reasonable to suppose that we can modify their virulence.

In considering the third question Dr. Yeo says that intestinal antiseptics are indicated in gastric catarrh and fermentative dyspepsia. Grangé recommends in cases of summer diarrhea the use of plain boiled and cooled water. He claims that the use of this dilutes the toxins. There are many other conditions to which fermentative dyspepsia and autointoxication give rise. Such are dyspepsia, chest pain simulating angina pectoris, vertigo, aphasia, and anemia. Even pernicious anemia had been considered by some observers to depend upon some toxin which exerted a hemolytic action. There are three other diseases in which the use of intestinal antiseptics is rational — namely, cholera, dysentery, and typhoid fever. Of the first two Dr. Yeo has had no practical experience, but with regard to typhoid fever he has for some years advocated and practiced the use of intestinal antiseptics. Typhoid fever often exhibits symptoms of being due to a mixed infection, and this may explain the extraordinary variations in the severity of cases. He says he recalls instances in which the use of a chlorine and quinine mixture given every two or three hours has been attended with most marked results for the better in cases of typhoid fever. So, also, in some cases of indefinite febrile affections accompanied by rise of temperature, furred tongue, and foul-smelling stools, the use of thymol by the mouth, together with irrigation of the large bowel by eucalyptol, olive oil, and soap and water administered in the knee-cheet position, had rendered the patients well. Dr. Yeo says he is not able to say to what exact disease this condition was due, but he thinks that whether the original infection had been by typhoid fever or influenza, the condition which he was called upon to treat was due to the action of the bacillus coli in an abnormal environment.

With regard to the fourth question, the various intestinal antiseptics are: water boiled and cooled, calomel and salines, both of great value in the early stages of typhoid fever. Salicylate of bismuth and carbolic acid are both useful. As to the latter, Dr. Yeo says he remembers a case published recently in *The Lancet* by Dr. G. Williams, where a patient suffering from typhoid fever took by mistake one ounce of carbolic acid. He had, of course, to be treated for the toxic effects, but recovered from them with his typhoid fever symptoms much lessened. Salol is very uncertain. Eucalyptol and thymol are both good, and irrigation of the large bowel in such cases as have been mentioned is a necessity. Patients, especially in typhoid fever, must not be overfed.

Dr. Yeo concludes with a warning against the production of the modern manufacturing chemist who sets up to teach the clinical physician.

ETHYL BROMIDE AS AN ANESTHETIC IN MINOR SURGERY.

The *Maryland Medical Journal* of September 2, 1899, contains an article by KEMPTER upon bromide of ethyl. As regards its mode of administration, Dr. Kempter says he follows the plan of Dr. Chisolm. He uses a crash towel, folded in the shape of an air-tight cone, rendering it impervious by a layer of paper, the base of the cone being sufficiently wide to cover both nose and mouth. He pours the full dose required to produce anesthesia into the inhaler, the dose in children ranging from one to two and one-half drachms, and in adults from two to three

drachms. He immediately covers the patient's nose and mouth, having previously instructed the patient to breathe deeply.

Having once applied the inhaler, he holds it down firmly, removing it only from the face when full anesthesia has been induced, which is recognized by the stopping of all struggling on the part of the patient. The patient may feel himself stifled; there need be no fear of causing asphyxia. Children struggle to escape from the inhaler; the cone, however, must not be removed for one instant from the face until full anesthesia has been produced. Should children cry it favors deep inspirations, which will assist in the anesthesia. Some hold their breath, but there is no danger that they will not "catch it" in time.

To the uninitiated it appears that the patient is being asphyxiated, and it impresses them as rather a barbarous procedure to keep the inhaler over a sometimes violently struggling patient. The cone must not be removed, for in no other way can rapid and safe anesthesia be obtained by ethyl bromide.

The time required to induce complete anesthesia depends upon the number and depth of inspirations taken. Generally speaking, one minute will induce deep narcosis.

Nausea or vomiting is of rare occurrence during its administration or at the period of deep anesthesia, which usually lasts about one and one-half minutes, rarely longer than two minutes. In most cases neither heart-beat nor pulse is influenced by ethyl bromide anesthesia.

The increase in pulse frequently is due to anxiety and fear and to the struggling of the patient, but after narcosis sets in it reaches its normal beat. The corneal reflex is present, with primary dilatation of pupil; the healthy color of the lips and skin is usually retained.

The patient awakes suddenly as if from a natural sleep, without loss of coordination and with a perfectly clear brain.

Dyspnea, short respiratory movement, and respiratory pause are unusual complications. Some after-effects, such as headache, somnolence, and amaurosis, have been noted.

Witzel, a German investigator, in 465 cases of ethyl bromide anesthesia mentions the occurrence of profuse perspiration in four cases and strangury in three cases.

The death-rate by the use of ethyl bromide as compared with chloroform and ether is summed up by a series of reports made at the Surgical Congress convening annually at Berlin. These reports cover a period of seven years, from 1890 to 1897, the mortality-rate being summed up as follows: Chloroform, 2023 cases, one death; ether, 5090 cases, one death; ethyl bromide, 5228 cases, one death.

Reich, a German authority, estimates sixteen deaths in 60,000 cases of ethyl bromide anesthesia. These figures are given in Dr. Ernst Hankel's Handbook of Artificial Anesthesia, Leipzig, 1898.

If we do not permit ourselves to be intimidated by the pessimistic accounts that one reads in the average text-book about ethyl bromide, and follow certain practical rules, danger from this form of anesthesia need not be feared.

The adult dose should not exceed three drachms. Owing to its volatile properties and liability to decomposition, the inhaler should be applied immediately and retained to the patient's nose and mouth till full anesthesia has been induced. Under no circumstances should the inhaler be removed for the purpose of prolonging the anesthesia.

A fresh preparation should be used. Exposure to light or air decomposes ethyl bromide and results in the formation of compounds having a more toxic effect than ethyl bromide.

A NEW METHOD OF ANESTHESIA.

J. GEPPERT, of Bonn (*Deut. Med. Woch.*, 1899, Nos. 27, 28, and 29), describes, with illustrations, an apparatus already successfully used in some 400 cases (in 230 by himself), which automatically delivers air containing a large and known percentage of chloroform into a mask or the open mouth of the patient, a scale in degrees of 0.25 cubic centimeters attached to a tap indicating the exact amount of chloroform delivered per minute. The mixture is concentrated; a small quantity is required, and free respiration is a condition for its use. A gasometer is filled with air; a weighted glass rod suspended from the top of the upper cylinder of the gasometer descends *pari passu* with it, and plunges into a glass tube containing chloroform, the overflow of which passes into a receiver in a bath at 90° to 100° C., and is immediately vaporized. The chloroform vapor is led into the discharge pipe of the gasometer, and the mixture of air and chloroform is led to a convenient spot by fixed gas piping, and thence by a

rubber connection to the operating table. The proportion of chloroform vapor to air (0.4–0.5 : 1 liter) depends on the relative diameters of the cylinder and glass rod, and also upon the chloroform in the tube being pure, or as Geppert employs it (mixed with ether, 2 to 1 by volume, by weight 300 grammes chloroform to 70 grammes ether). Condensation does not then occur above 10° C.

The installation of the surgical clinic at Bonn is large enough for at least six administrations of from one to two hours; the service to the operating-room is fifteen meters, where it ends in three supply taps. It is kept always ready for use. Smaller apparatus have been made, including a portable one for use in the wards. A dose less than 1.2 cubic centimeters per minute causes no unpleasant sensations, but given without preparation that amount is distressing, and 2.2 cubic centimeters is unbearable; with preparation the dose may be gradually increased.

Geppert recommends that for quiet anesthesia, free from danger, the supply of chloroform should be continuous, but only just sufficient for the case; and that it should not be interrupted unless the pulse falls below 60, or is poor in character, or the respiration becomes slow or superficial. The mask employed may be covered with fine wire gauze instead of flannel. Before it is applied the regulating tap is opened to allow the air in the conducting pipes to escape; the tap is then closed, and the mask applied in the usual way, taking care that the stream of chloroform vapor will fall below the nose, so as to mix with the air entering the lungs. Regulation is entirely by the tap, not by withdrawing the mask. A beginning is made by gradually opening the valve, till at the end of about one minute the indicator reaches 1.2 cubic centimeters per minute, when a pause is made for a couple of minutes; the indicator is then turned to 1.45 cubic centimeters, and a pause again made; and so on, the increase being made more gradually as 2.2 cubic centimeters is approached. Women are narcotized generally at 1.70 or 1.95 cubic centimeters, men somewhat later. If narcosis seems at any point nearly established, the supply of chloroform is not increased. It is particularly desirable to use as little as possible, and as much as 2.2 cubic centimeters per minute has seldom been required for women. Men require more; alcoholics have taken as much as 3.70; 4.2 has never been reached, but the longer Geppert has practiced this method the more rarely has he had to use large doses.

When narcosis has been established, the dosage that has been reached must be continued for one or more minutes, particularly if the chloroform is not administered in the operating-room. In any case one commences in the operating-room with the same dose (after flushing the conducting tube). In the first part of the operation the same dose is required, or if there be reaction to the knife, a little more; but after a few minutes it may be gradually reduced to about 1.2 cubic centimeters or somewhat higher in men, somewhat lower in women. With this stage smooth water is reached. The pulse rises above 72, respiration is frequent, the corneal reflex generally present; pupils not dilated and sensible to light. Should the latter dilate or the pulse slow, the tap may be cautiously closed. Should reaction set in it may be opened one or two degrees (0.25 or 0.50 cubic centimeters); in the later stages short intermissions of from fifteen to thirty seconds may be made. It is often necessary, especially in operations on the face and neck, during the narcosis to replace the mask by a knee-tube, the end of which can be passed into the mouth, and such a tube may be used for anesthesia through a tracheal cannula, or in the case of very nervous women who fear the mask. The average amount of chloroform vapor required in the first hour was 30 to 40 cubic centimeters, and for a two-hour operation 40 to 60 cubic centimeters, with half as much ether in each case.—*British Medical Journal*, Aug. 12, 1899.

REPORT OF ONE HUNDRED AND TWELVE CASES OF APPENDICITIS.

MEANS (*Journal of the American Medical Association*, Aug. 5, 1899) reports 112 cases of appendicitis, eighty-two of which were treated by operation and thirty by medicinal measures. Of the eighty-two operated cases, two died—one of acute suppurative peritonitis, which had existed before operation, the other a case of chronic trouble from unknown causes.

Of the operative cases, thirty were acute and fifty-two were chronic or recurrent.

In nine cases the operation was performed within twenty-four hours of the attack; in five of these the appendix was ruptured.

In seventeen cases the operation was performed within forty-eight hours of the

attack; in ten of these the appendix was gangrenous.

Twenty-three cases were operated on within seventy-two hours. In twenty of these cases the appendix was gangrenous in some portion; three cases were instances of catarrhal abscesses, with more or less inflammation of the surrounding tissues.

In twenty-five cases the operation was performed after the third day, and as late as three weeks. There were abscesses in twenty of these; five cases were catarrhal; in nine cases the appendix was not removed, since it was found embedded in granulation tissue, forming the walls of the abscesses. Fecal fistulæ followed in four cases. These closed spontaneously in the course of a few months.

In so far as the author has been able to ascertain, hernia followed in six cases. A mistaken diagnosis was made twice. One of these cases was a cholelithiasis, the other a pyosalpinx.

Of the thirty patients treated medicinally, eight died from septic peritonitis; twelve of the twenty-two who recovered had recurrent attacks. In five of the cases treated medicinally, operation was refused because of the hopeless condition of the patient.

It may be accepted as an established fact, according to Means, that in males peritonitis has its origin almost exclusively in the appendix. Evidence of the existence of the disease may be determined by skilful palpation. This is best made by Edebohl's method.

The patient lies on his back with limbs flexed at the hips. Placing three or four fingers of the right hand flat on the abdomen, we feel for the margin of the right rectus muscle, in the line between the navel and the anterior superior spine of the ilium. The fingers are introduced with a light, steady pressure under the margin of the rectus until we feel distinctly the pulsation of the common iliac artery. The appendix is felt, as a rule, just outside the artery, its insertion about an inch distant, while its tip often crosses the artery. We move the fingers slowly outward as soon as we feel the pulsation of the artery, and note with care the condition of the posterior abdominal wall—that is, the iliopsoas muscle covered with the iliac fascia. This is the point of resistance against which we compress the appendix and which makes it possible to palpate it. When there is much tenderness and rigidity of the museles, it will be almost impossible to feel the appendix; and again, if the appendix extends upward behind the colon, it cannot be discovered. However, with experience a skilful manipulator will be able to determine the outlines of the appendix in a large percentage of cases.

There are other points in the differential diagnosis that might be mentioned. Renal colic is perhaps one of the most difficult conditions from which to differentiate. We should bear in mind, however, that in appendicitis, while the pain is constant it is progressive in its intensity; and in renal colic while the pain is constant the intensity is not increased. In renal colic, when the pain ceases it ceases instantly; in appendicitis it ceases gradually.

Then, again, in a limited number of cases where the appendix is behind the colon, the pain may extend to the testicle, as in renal colic. If other characteristic symptoms of appendicitis are present and the peculiar progressive character of the pain is recognized, it is possible to differentiate from renal colic.

In gall-stone colic there is nausea and vomiting, usually continuing for several days; in fact, the gastric disturbance is characteristic of disease of the gall-bladder. The location of pain in gall-stone colic is in the epigastrium, and it radiates toward the shoulder and scapula. The seat of tenderness is also usually over the gall-bladder, while in appendicitis it is over McBurney's point.

In the female there may be some difficulty in differentiating between appendicitis and salpingitis. In the early stage the differentiation can be made much more readily than later when pus has formed. The main points of difference are the acuteness of the attack in appendicitis and its tendency to recurrence. The pain in appendicitis is more acute and the location of the tenderness is different. A vaginal examination will reveal the seat of tenderness to be in the right pelvis; while in appendicitis the pelvic organs will not be tender. Chloroform narcosis may be necessary to complete a satisfactory examination.

Means appends to his paper the following conclusions:

An early diagnosis of appendicitis is desirable and possible if the few cardinal symptoms are understood, such as pain near the umbilicus, tenderness in the ileocæcal region, tympanites, and rigidity of the muscles in the lower right quadrant of the abdomen.

Too much significance should not be placed upon the presence or absence of pain, and high temperature. Both may be absent, while grave pathologic conditions are going

on. They may also be present to a high degree without determining the pathologic status.

Appendicitis is a surgical sickness, and should be treated from a surgical standpoint.

From the nature and location of the disease there are no known remedies given internally or applied externally that can remove the trouble.

The pathologic conditions of a diseased appendix cannot be definitely determined by external examination or from the existing symptoms.

Early operations give the best results.

The time for operation is when a diagnosis has been made, providing the environments of the patient are favorable, and there are no complications precluding the same.

The technique of the operation is governed largely by the taste of the operator and the pathologic conditions.

LAMINECTOMY FOR DISLOCATION OF THE SPINE.

JOHNSON (*Annals of Surgery*, August, 1899) reports the case of a man, thirty-two years of age, who had enjoyed good health up to the 16th of last July, when he fell from a tree, striking upon his buttocks. The injury received produced almost complete loss of motion in both lower extremities, anesthesia of the genitals and the inner surfaces of the thighs, partial anesthesia of the outer surfaces of the thighs and of the legs, with complete paralysis of the bladder and loss of control of the rectum. When the reporter first saw this patient, three months later, he had regained some muscular power in the lower extremities, so that he was able with assistance to walk a few steps. He thought that the anesthesia was slightly improved; it was, however, well marked, and no urine had been passed since the accident, except by means of a catheter. He had no control over his rectum. In the region of the lower dorsal spine there was a marked kyphosis, corresponding to the spine of the first lumbar vertebra. The distance between the last dorsal spine and the first lumbar spine was greater than normal. Palpation on either side of the spine showed the presence of two sharp, bony prominences, corresponding to the articular processes of the first lumbar vertebra, which appeared to be dislocated backward. The patient was somewhat emaciated and in poor condition generally, and it was decided that an operation might give him some relief.

A vertical straight incision, six inches in length, was made over the spines of the vertebræ, with its center over the space between the last dorsal and the first lumbar spine. The muscles were stripped away upon either side from the spines and laminæ, and the bleeding checked by means of gauze packing; few ligatures were applied. After the separation of the muscles the spines and arches of the last dorsal and of the first and second lumbar vertebræ were removed with rongeur forceps. It became evident that the arch of the last dorsal vertebra was pressing forward upon the dura. Underneath the arches of the first and second lumbar vertebræ, also compressing the dura in a forward direction, was a dense mass of new connective tissue. No evidences of fracture were found. By raising the dura and exploring the anterior wall of the spinal canal with the finger and with blunt instruments a bony ridge could be felt, which appeared to be the upper border of the body of the first lumbar vertebra. The dura appeared to be markedly distended; it was punctured, and a stream of clear cerebrospinal fluid escaped under some tension. Inspection of the cord showed nothing beyond an apparent flattening. The wound in the dura was closed, as well as the wound in the remaining soft parts, by means of sutures. Primary union occurred throughout.

After the operation the patient complained of a good deal of pain in his legs. Within a week he began to urinate voluntarily, and has now regained complete control over his bladder and rectum. He walks so well that he has been enabled to resume his ordinary occupation. The anesthesia has almost entirely disappeared, and his general health is excellent.

OBSTINATE HICCOUGH FOLLOWING NEPHRECTOMY OF CALCULOUS PYONEPHROSIS.

DESPAGE (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) reports the case of a man forty-three years old upon whom he operated for the relief of a pyonephrosis, the nature of which was determined only by an exploratory incision. Cystotomy was performed, the opening being along the outer border of the rectus muscle. This showed the tumor to be retroperitoneal and involving the kidney. The peritoneal opening was then closed and the

kidney was excised, access to this organ being afforded by an incision carried at right angles to the first cut in the direction of the lumbar region. The decortication of this tumor was extremely difficult, especially in the direction of the diaphragm; moreover, the pus sac was torn during these manipulations, and the whole wound was inundated with pus. The cavity left after this operation was drained. Because of the free bleeding there was much shock. This was followed by a temporary anuria. Under the influence of subcutaneous injections of about fourteen pints of serum the functional activity of the remaining kidney was reestablished. The patient began to vomit the day following the operation, and on the second day was tortured by hiccough, which was persistent and harassing for nine days. The anuria after the operation lasted sixteen hours. For twelve days the urine held albumin and granular casts. The patient recovered.

ULTIMATE EFFECTS OF NEPHRECTOMY.

VERHOOGEN (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) presented before the Belgian Society of Surgery a patient on whom he had performed nephrectomy for the relief of a cancer of the left kidney five years before. A tumor developed following a slight trauma, and was removed, together with the entire kidney, which was infiltrated. This growth was found to be a glandular carcinoma of the kidney with cystic degeneration. According to Verhoogen, medical literature contains only five similar cases in which survival was longer than four years. The fortunate result is attributed to the early surgical intervention, this having been practiced within two months of the injury.

The second patient presented by Verhoogen had been subjected to nephrectomy because of tuberculous pyonephrosis. The cachexia rapidly disappeared, and the patient regained all appearances of robust health. What is of far more importance, the tuberculous lesions which were manifest in other parts of the body either retrograded or disappeared completely; thus a cystitis which had been present cleared up, and the sounds of infiltration which were noted in the lungs disappeared. The hectic from which the patient suffered was cured immediately. Two other such cases have been operated on, one more than six years ago, and all have been practically well ever since.

PAINLESS LITHOTRITY UNDER THE INFLUENCE OF RECTAL INJECTIONS OF ANTIPYRIN.

DU CHASTELET (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) calls attention to the fact that rectal and vesical irrigations or injections of antipyrin have long been recognized as potent means of lessening vesical sensibility. In the subject of his present report the following solution was injected into the rectum three-quarters of an hour before beginning the operation of lithotrity, which was performed by Guyon:

> Antipyrin, 24 grains;
> Laudanum, 10 drops;
> Water, 3 ounces.

The crushing and evacuation of the stone was absolutely painless. The bladder seemed non-sensitive to touch and tension. The operation lasted more than half an hour, and the only inconvenience experienced was that incident to the repeated passage of instruments along the urethra.

PROSTATIC CALCULI.

ROUSSEAU (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) reports the case of a man forty-five years old who had suffered from gravel since his seventeenth year. In March, 1895, he suffered from frequent and painful micturition and vesical tenesmus; moreover, there was a free purulent discharge upon the passage of the sound in the prostatic region. A perineal cut enabled the calculus to be withdrawn; it weighed an ounce. Subsequently the calculus reformed in the prostate pouch, and the patient died of repeated operations.

The second case had suffered for two years with hypogastric pains, increased by efforts of micturition, frequently recurring. The sound showed roughness in the prostatic region. The extraction was accomplished by the combined perineal and hypogastric routes, since the prostatic portion of the stone was united by a narrow neck to the intravesical portion.

VESICAL CALCULUS IN AN INFANT.

DELAGRANGE (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) observed a child five years old who for two years had difficulty in micturition. This difficulty became progressively worse and was associated with great pain, located especially in the perineum. The urine was passed only

after long-continued efforts, and would then come a few drops at a time; it contained no blood, and the moment the straining efforts were over the pain ceased. It was not aggravated by jolting. Exploration with bougie showed nothing but spasm of the compressor urethræ muscle. Rectal examination was also negative. After repeated passages of the sound the click and rough grating of a calculus was detected. This seemed to be placed in the urethra, and for its removal external urethrotomy was performed, but the calculus could not be found. The wound suppurated, but closed in a month. Intermittent sounding was practiced, but no further sign of the calculus could be detected. Somewhat later the intravesical calculus was felt, but its presence could not immediately be confirmed by subsequent examination. Some two weeks later, however, it was felt anew, and was extracted by means of suprapubic cystotomy. It was ovoid in shape, about three-fifths of an inch long and two-fifths in diameter. Healing was by first intention, and with the exception of a bronchopneumonia convalescence was uninterrupted.

A CASE OF VESICAL TUBERCULOSIS CURED FOR FIVE YEARS BY INJECTIONS OF IODOFORM OIL.

JAMIN (*Annales des Maladies des Organes Génito-Urinaires*, No. 7, 1899) states that injections of iodoform oil in the treatment of tuberculous cystitis have in several instances enabled him to obtain in a few months a cessation of all symptoms of cystitis and the total disappearance of the Koch bacilli. The subject of his present report has been well for more than five years, although at the time she came under treatment she exhibited the symptoms, signs, and bacteriological evidence of tuberculous cystitis. At first instillations with weak bichloride were tried, but this drug was not well tolerated. Iodoform suspended in liquid vaselin, five parts to a hundred, was then employed. No inconvenience of any kind was experienced, although from one to two teaspoonfuls was employed at a time. The injections were given at first daily, then every second day. The quantity of bacilli steadily diminished, and finally these germs disappeared completely. At the same time the symptoms of cystitis had become insignificant and micturition had become normal and painless.

In the course of four and a half months sixty-two iodoform injections had been administered. In the next year these injections were given about once a week. The following year the patient was seen about twenty times and was given an injection each time. The urine by this time had become perfectly limpid, and the general health had enormously improved.

This case seems to prove conclusively the admirable results which may follow such a course of treatment. Although Jamin has injected many other bladders in the last six years with this same preparation, he has no other equally successful case to present. Often the amelioration is most striking.

Guiard, in commenting upon this communication, adds his testimony in favor of the iodoform oil injections. He especially calls attention to the innocuousness of this means of treatment. It causes no inflammatory reaction and usually produces an immediate lessening of painful sensations and reflexes. This forms a marked contrast to the use of the sublimate solution, which, though often efficacious, will produce on occasion pronounced reaction and distinct augmentation of kidney symptoms.

INFLAMMATION OF THE BURSA GASTROCNEMIO-SEMIMEMBRANOSA.

HAWKES (*Annals of Surgery*, July, 1899) reports four cases of this affection cured by excision. It is an affection which rarely occurs in literature.

The gastrocnemio-semimembranosa bursa is situated between the inner head of the gastrocnemius and the tendon of the semimembranosus muscle, and when distended furnishes a very large percentage of all bursal swellings situated in the popliteal region. It lies at the bottom of the so-called popliteal internal sulcus. This sulcus or depression has for its inner wall the shelving inner head of the gastrocnemius, and for its outer the cord-like mass of the inner hamstring tendons as they cross the back part of the knee-joint. It is best seen and felt when the patient is in the standing posture, with the full body weight borne on the lower extremities; the limiting muscles are thus made prominent and so deepen this internal popliteal sulcus, at the bottom of which lies the bursa, its center being about on a level with the upper articular surface of the tibia. It is shaped somewhat like the letter U, and rests astride the outer and tendinous border of the inner

head of the gastrocnemius, at the point where the tendon of the semimembranosus muscle overrides this border on its way to its tibial attachment below, one of the limbs of the U resting on the anterior surface, the other on the posterior surface of the gastrocnemius in this position. Its inner surfaces are normally everywhere in perfect contact, and are sufficiently lubricated by the so-called "synovial secretion" to permit the necessary gliding motions between adjacent structures without undue friction.

In size this bursa averages one to one and one-half inches in the long axis of the limb, and about three-quarters of an inch in the transverse. It is sometimes much larger, and this is particularly noticed in muscular subjects. It is sometimes multilocular, with the various cavities communicating or occasionally separate from one another. The two limbs of the U may be separated by a so-called "diaphragm" of varying thickness, often perforated at or near its middle. Bands are also seen occasionally in the sac crossing from one side to the other.

While consisting often of a closed sac, it occasionally communicates with the knee-joint; this communication, according to Gruber, being found in about one-third of these bursæ, and being most frequently encountered in well developed male adults.

While not communicating directly with the knee-joint capsule, this bursa may communicate with the bursa directly above it; which almost invariably either leads directly into the knee-joint, or is separated therefrom by a membrane so thin as to offer feeble resistance to the spread of infection.

Overaction is usually the starting-point of bursitis. This overaction may be in the form of prolonged and unusual use of the joint, or of some sudden extreme effort. In other cases there is no apparent cause, and this should suggest the possibility of tubercular, rheumatic, or luetic infection.

When this bursa becomes distended it appears first at the bottom of the internal popliteal sulcus as an oblong cystic swelling, which projects more and more into the popliteal space, until it occupies a large portion of it, the bulk of the swelling being, however, to the inner side.

A position of hyperextension of the knee causes the swelling to project to its utmost. Over it the skin and fatty layers are freely movable. A characteristic sign of this tumor is the firm attachment of its base to the inner hamstring tendons.

The contents of the bursa can sometimes be reduced into the knee-joint, when there is a free communication with this cavity; the position most favorable for this is one of semiflexion of the knee. This sign of reduction is not to be relied upon unless it is most marked, nor should absence of this sign be construed as proving that there is no communication between the bursa and the joint.

Fluctuation can usually be detected, and sometimes the movable bodies so common in these bursæ can be felt. There is rarely much pain. The patients complain rather of a sense of discomfort, of pressure, and of limited motion; moreover, the knee feels weak. As the tumor increases in size, swelling of the leg and foot may develop as a result of pressure.

A popliteal bursa usually shows itself, when distended, as a deep elastic tumor, situated farther down in the calf of the leg.

Distention of the gastrocnemio-condylar bursa alone can scarcely be diagnosed apart from the accompanying knee joint distention, on account of its deep situation under the gastrocnemial head, and from the fact that, as a rule, it either communicates with the knee-joint by a free opening, or is separated from it by such a delicate membrane that any increase of tension within the bursa would in all probability cause the bursal contents to gain access to the knee-joint.

Distention of the bursa between the semimembranosus tendon and the head of the tibia might present signs very similar to those under consideration. Hawkes has not been able to find a recorded case.

As to the treatment of this affection, which is sometimes bilateral, Hawkes rejects all methods excepting excision of the sac after compression and counter-irritation have failed. The limb is emptied of its blood by an Esmarch bandage and kept in this condition by the rubber tourniquet. The patient is then turned on the sound side and the knee is held in a position of forced extension by an assistant. The skin incision is made in the long axis of the limb over the most prominent part of the tumor, curving a little more to the inner side of the knee below so as to be over the origin of the bursa at this point. The tissues are divided down to the popliteal fascia and the upper portion of the cyst is exposed. The cyst is then freed of its adhesions without opening into the bursal sac until it has been freed from the semiaponeurotic surface of the gastrocnemius,

on which it lies in part, and from the upper three-fourths of its attachment to the semimembranosus tendon. This brings the cyst down to a pedicle of moderate size, and dissection is much facilitated if the contents of the sac are evacuated and its inner walls explored for openings communicating either with the knee-joint or with the bursa directly above. Where no such openings are found, the further dissection of the cyst wall is best carried out by introducing a finger of the left hand into the cavity of the bursa and pulling the remaining pouch over it like a glove finger. In this way the whole bursal wall may be removed with the least damage to the tendinous structures at its origin, and with a minimum risk of opening into the synovia of the knee-joint. Where a joint communication is clearly detected or seems probable from previous signs, a catgut ligature should be thrown around the pedicle at this point and the sac cut away. If there be found an opening into the bursa above, it is to be similarly treated, because of the usual communication of this latter bursa with the knee-joint; or such bursa may in turn be dissected out and its opening into the knee-joint closed. Slight flexion at the knee-joint should facilitate this part of the work, relaxing the gastrocnemial fibers under which this second bursa lies.

MODIFICATION OF PLASTIC OPERATIONS ON THE LIPS.

SILBERBERG (quoted in the *Medical News*, Aug. 5, 1899) suggests a modification in the technique of operating for cancer of the lips, which shall give a complete red edge to both lips. It is only possible when the angle of the mouth is not excised. For instance, after the usual V-shaped incision of a growth in the lower lip, a double-edged knife is passed through the upper lip, at a little less than an inch from the angle of the mouth. The blade is passed obliquely so that the mucous surface shall be wide. The incision is made along the red border to the angle of the mouth, and then on out into the cheek for an inch or more, and thence downward toward the point of the chin in a line parallel to the edge of the V-shaped wound made by the removal of the growth. Such a cut is made in both cheeks, and when the gap in the lower lip is closed by bringing together these flaps from both cheeks the angles of the mouth will be shifted from their usual positions to the points in the upper lips where the incisions began. The two lips thus being made of equal length, deformity of the mouth is avoided. This principle of operation can be adapted to any of the incisions about the mouth, which leave its angles intact.

HERNIA FOLLOWING OPERATIONS FOR APPENDICITIS.

HARRINGTON (*Boston Medical and Surgical Journal*, August, 1899) states that at the Massachusetts General Hospital from January, 1888, to August, 1897, 503 cases of appendicitis of all varieties recovered after operation by the various surgeons. He personally examined 236 of these cases, and received letters from 139 others. He found that many who had reported themselves as perfectly well had marked general bulging of the abdominal wall on the side operated upon. Some had protrusions of the wound, and some had hernias of which they were not aware, as they caused no trouble.

Of the 236 cases examined, eighty-five were tightly closed at the time of operation; eighty-eight were partly closed at the time of operation; and sixty-three were open wounds. There were fifty-two cases of bulging in the wound—twenty-seven to a slight extent, and twenty-five to a marked extent. There were twenty-seven cases of true hernia. Most of these, as was the case with the bulging, developed in the wounds which had not been closed at the time of operation. The wounds partly closed were followed by fewer hernias than open wounds. Weakening of the abdominal wall existed in a large percentage of the cases which were drained. The muscular and tendinous fibers should not be transversely cut in any appendix operation unless it is unavoidable.

As little drainage material as safety will permit should be used. When drainage is necessary the wound should be closed as far as possible with sutures and the drainage removed as early as safety will permit. If the wound can be closed immediately the tissues should be restored to their normal position by suturing each layer.

Stout belts and trusses are of little value and may even do harm.

The abdominal muscles from the earliest period possible after operation should be developed by appropriate exercises.

If hernia or marked bulging appears, operation for cure is safe and satisfactory.

GASTRIC ULCER AT THE MASSACHUSETTS GENERAL HOSPITAL.

GREENOUGH and JOSLIN (*American Journal of the Medical Sciences*, August, 1899) append to an interesting study of the records of the Massachusetts General Hospital a comparison of these records with those of other institutions. They have published the following conclusions:

Gastric ulcer is more frequent in Boston than in Chicago, Baltimore, Denver, or San Francisco.

It is five times as common in women as in men.

The average age in men is thirty-seven years; in women twenty-seven.

Hemorrhage was present in eighty-one per cent of the cases. It caused the death of seventeen per cent of the male patients, but only 1.27 per cent of the females. No woman under thirty died of hemorrhage from gastric ulcer during this period.

The blood was that of a chlorotic type of anemia.

Perforation occurred in 3.2 per cent of the cases, and none of these patients left the hospital alive.

Of 114 patients eighty per cent were discharged cured or relieved, but at the end of an average period of five years only forty per cent remained well. The mortality at the same time (due to gastric disease) was twenty per cent; among the males it was thirty per cent, with the females nine per cent.

The excessive mortality of ulcer among men, its occurrence in life a decade later than in women, and the absence of fatal cases of hemorrhage in females, point to a difference of the ulcer in the two sexes.

The mortality of eight per cent, and the failure of medical treatment to effect a lasting cure in sixty per cent, of the patients indicate the need of surgical intervention in other than emergency cases of this disease.

THE PRINCIPLES OF THE TREATMENT OF INJURIES OF THE SPINAL CORD.

BOLTON (*Annals of Surgery*, August, 1899) states that so far as a spinal injury itself is concerned, the rules governing the treatment of fractures, dislocations, and distortions hold perfectly good within the limitations imposed by the anatomy of the spine, and that from this point of view there can be no reasonable objection to reduction by operative measures, if need be. So that this part of the problem may be dismissed without further discussion.

The cord injuries, however, occur in such variety, and their symptomatology is oftentimes so puzzling, that confusion in the identification of the lesion present has sometimes led to the adoption of methods of treatment whose results have been most misleading.

The repair of injuries of the cord after division is by the growth of ordinary cicatricial tissue.

Extra-medullary hemorrhage occurs oftenest between the dura and the wall of the spinal canal, far less often within the dura. It is yet to be proven that hemorrhage between the dura and the bone ever occurs in sufficient volume to give rise to symptoms referable to the cord by causing compression. The bleeding occurs chiefly from veins of small size, and is capable of wide distribution before it can exert pressure upon the cord.

Complete lesions of the cord occur most commonly in fractures and dislocations of the vertebræ, the result of forced flexion of the spine, in which the affected portion of the cord is crushed against the body of the lower vertebra by the arch of that above or by fragments of vertebra or intervertebral disks displaced into the canal.

A similar result may be produced by a direct or indirect fracture of the laminæ of a single vertebra with depression of the fragment into the spinal canal upon the cord.

The cord is pulpified within the pia, and disintegration of the cells and fibers in the affected area immediately follows. There is no regeneration of nerve elements, repair taking place by the growth of ordinary connecting tissues.

Incomplete lesions of the cord occur at times under the conditions named above, but are more often incident to stab or bullet wounds or distortions of the spine. Degeneration occurs above, below, and beyond the lesion, and repair takes place by the growth of scar tissue. The directly injured cells and fibers are lost.

Hemorrhages in the cord as a rule occur in the gray matter. Their site is at the cervicodorsal or dorsolumbar junction, in those portions of the cord corresponding to the most freely movable parts of the spine; and this fact points to their probable etiology by overtension in the axis of the cord.

Along with hematomyelia there may be, and not infrequently is, more or less contusion of the cord.

Considering these lesions from the viewpoint of their amenability to treatment, it appears that extradural hemorrhage does not give rise to cord lesions or symptoms, and requires no treatment.

Total lesions of the cord are irremediable, because the cells and fibers of the entire thickness of the cord are destroyed, are never regenerated, and are replaced by cicatricial tissue. The lesion thus is permanent and requires no treatment.

In hematomyelia the clot is absorbed; its site persists as a cavity or is filled by newly formed tissue; irregularities of circulation in the surrounding portions of the cord adjust themselves. There may be great amelioration of the symptoms.

There is therefore no therapeutic indication, and no remedial treatment is possible.

In partial contusion of the cord the lesion results in permanent destruction of cells and fibers; disturbances of circulation adjust themselves. Repair is accomplished by cicatricial tissue. No treatment is available.

In open injuries of the cord there are destructions of cells and fibers and disturbances of circulation. In addition, infection may occur or a foreign body be introduced and left in or lodged against the cord, and by its continued presence produce great disturbance of circulation and consequent extensive degeneration and necrosis of cells and fibers. Repair occurs by cicatricial tissue as before.

But here active operative interference is indicated to remove foreign bodies, to facilitate disinfection, to prevent more extensive necrosis, and to facilitate drainage.

TRAUMATIC RUPTURE OF THE COLON.

MAKINS (*Annals of Surgery*, August, 1899) has successfully treated in the last three years two cases of rupture of the ascending colon. In his second case, not previously reported, the indications for exploration were the nature and history of the injury (the force had been severe and applied to a strictly local area which was marked by a distinct abrasion), frequent and early vomiting, early development of the rigidity of the abdominal wall, local tenderness, impairment of resonance in the right iliac region, the absence of definite signs of injury to the urinary bladder or solid viscera, combined with the evidence of serious injury as indicated by the degree of shock, abdominal pain, rise in pulse, general pallor, and perspiration. On opening the abdomen there was a well marked fecal odor, and a large amount of plastic lymph had developed on the surface of the coils of the small intestine lying in the right iliac region, and the pelvis on the right side. The operation was undertaken seven hours after the injury. Makins, as a result of study of the records of the St. Thomas Hospital between the years 1889 and 1898 inclusive, finds that of the 8153 cases of injury to various parts of the body treated in the hospital, 292 (3½ per cent) were injuries of the abdomen. Of these 292 cases, eighty-nine were ruptures either of the abdominal viscera or urinary bladder. Of the eighty-nine cases, twenty-one were ruptures of the intestine, of which six were the result of kicks by horses, five were run over, four fell, two were caught between buffers, one was struck by the end of a plank on a sawing machine, one was pinned by the pole of a van against a wall, one was struck by a falling box, and one was caught and rolled between two passing railway trucks.

Of the twenty-one cases, the small intestine was ruptured in sixteen, the large in five. A consideration of the points elucidated by a study of these cases shows that the actual determining elements as to the part of the intestinal tube likely to be injured are that the violence be exerted on that part of the belly cavity supported by a bony wall posteriorly, and hence, that the bowel to be injured should either be fixed in the lower half of the abdomen or possess a sufficiently long mesentery to lie in that region.

Blows over the abdomen above the level of the umbilicus are very unlikely to cause a rupture of the intestine, unless the violence be so directed as to allow the gut to be directly compressed against the spinal column, a matter of some rarity. If blows so directed are received, injury to the mesentery or omentum is at least equally as probable as one to the bowel itself.

In none of the cases was there a large extravasation of fecal contents. In six cases shock was severe, in eight cases it was slight, and in three it is definitely stated that there was no shock. Abdominal pain is a constant sign, but not necessarily either severe or continuous. Rigidity and immobility of the abdominal wall are almost constant, but are not pathognomonic of the injury. Abdominal tenderness is to be regarded as a constant sign, but is often obscured by injury which is present in the abdominal wall.

In all cases the pulse shows a steady tendency to rise in frequency and lose in strength, practically in an identical manner to that in which it acts in other cases of peritoneal septicemia. This is regarded by Makins as the most important single sign in the question of deciding on abdominal exploration.

A definite diagnosis between simple rupture of the intestine and rupture of the mesentery is often impossible. The latter condition, however, is suggested by the presence of a large quantity of free blood in the peritoneal cavity, since uncomplicated ruptures of the intestine are rarely accompanied by free hemorrhage. The violence is usually a crush or gliding force, such as a wheel passing over the abdomen.

Of the fifteen cases operated upon, there were three recoveries, or twenty per cent.

The operation should be performed if rupture is either diagnosed or suspected. A median incision between the umbilicus and the pubes, in or slightly to one side of the linea alba, is generally to be preferred. After opening, the site of the rupture is suggested by the presence of the plastic lymph, which is developed early, and especially in the neighborhood of the rent, and often by local peritoneal effusion, which may be foul-smelling. Moreover, blood is usually present in small quantity near the seat of rupture, and from the opening gases may escape.

In the presence of retroperitoneal emphysema, pointing to injury to the colon or duodenum outside the limits of their peritoneal covering, Lembert's suture is to be preferred in closing the wound.

When surrounding contusion is severe, or complete transverse solution has occurred, resection of a suitable portion of the gut should be followed by closure of the ends of the cut bowel, and the establishment of a lateral union or anastomosis, either with Halsted's suture or a Murphy button.

The abdominal cavity is best cleansed by a preliminary dry sponging of the obviously infected area, followed by irrigation, and, if necessary, the protrusion and washing of the small intestine and thorough flushing of the pelvis and various peritoneal fossæ. Irrigation prior to the dry cleansing of the most severely affected area is to be avoided.

Drainage is to be avoided if possible, but if, from the extent of the infection or the special distribution of it, it is deemed necessary, it should be abundantly provided for by means of a gauze plug.

In the after-treatment shock is best combated by saline infusions. Rectal feeding should be relied upon for the first twenty-four hours; after this period fluid nourishment may be administered by the mouth.

Morphine should be avoided if possible, and should distention and sickness herald the advent of septic infection, saline purgation should at once be resorted to as in other cases of peritoneal septicemia. Sulphate of magnesia may sometimes be retained, even when vomiting is troublesome, by washing out the stomach preliminary to administering each dose.

NEPHRALGIA.

HUBBARD (*Annals of Surgery*, August, 1899) publishes a history of five cases of nephralgia occurring in the Massachusetts General Hospital.

In the first case there was a history of renal pain and the passage of gravel and small stones, aggravation of the pain on motion and jarring, and pus and blood in the urine, the latter at times in large quantities. This patient was operated upon in 1891 for stone, but none was found. He remained well for seven years, when he had a relapse, passed blood and pus, and lost thirty pounds in weight. He then passed some gravel, and since that time has been free from pain, passes clear urine, and has gained in weight.

The second case had a sudden pain in the right loin running down to groin and testis five years ago, which pain was accompanied by vomiting. The second attack followed in a year, and since then these attacks have been monthly. He never passed gravel nor had any trouble with micturition. The urine was normal and there was no kidney tenderness. He was operated upon in 1894, but the kidney was not opened. Three months after leaving the hospital there was a reminder of the attacks, another three months later, and since then this patient has remained well.

The third case gave a history of passing bloody urine, and every three weeks or so had severe pain in left side. There were recurrences of the pain in the left side, and coincident with these attacks of pain the urine became bloody, and large clots were passed. He was operated upon in 1895. The needle grated on something as it explored the kidney, but an incision one and one-half inches long, through the posterior edge and pelvis of the kidney, failed to find the stone. The patient reported that he had had a few attacks of bleeding.

The fourth case suffered from pains across the back and passage of gravel, the largest piece the size of a pea. His pain was greatly aggravated by jolting. The urine contained pus. He was operated upon in 1897. The kidney was needled, but no stone was felt. The kidney was then incised and explored by the finger, with negative result. A year and a half later he reported that he was entirely free from pain and troubled less from frequency of micturition.

The fifth case gave a history of renal colic so severe as to require hypodermic injections of morphine. No blood, stones, or gravel had been noticed in the urine. He was slightly tender over the region of the kidney behind. At one time a few red corpuscles were found in the urinary sediment. He was operated upon in 1897. The kidney was incised along the convex border from the middle to its lower edge, and explored by the finger, but no stone was felt. A year and three-quarters later the patient wrote that he had gradually improved and had no pain in that side. He had suffered from a severe attack of pain in the other side and passed some blood.

Of the five cases, Hubbard considers that three have been cured and two relieved, with still some doubt as to the final outcome in both of them.

These few cases are scarcely sufficient either in number or in careful and detailed study to form the basis of a differential diagnosis and treatment.

PANCREATIC APOPLEXY.

RASUMOWSKY (*Archiv für Klinische Chirurgie*, 59 Band, 3 Heft) reports in detail a case of pancreatic apoplexy occurring in the person of a doctor. He considers this affection as distinct from the more commonly recognized but none the less rare hemorrhagic pancreatitis.

The patient had suffered since youth from acute and chronic indigestion. Following a very moderate indulgence in eating and drinking, he was seized with pain in the epigastrium, which in a few hours increased to first crippling and then agonizing intensity. There was vomiting; the bowels were freely opened by castor oil. There was dulness on percussion over the stomach, especially in the right nipple line, and this part of the abdomen was markedly distended, producing a distinct contrast with the lower part of the belly, which even seemed retracted.

The pulse mounted rapidly from 80 to 120 and 150 beats to the minute, and shock was so pronounced that the patient's life was despaired of. There was constant vomiting, suppression of urine, and dyspnea. Under active stimulation and the use of opium for the suppression of the agonizing pain, the patient rapidly recovered.

The temperature, which had fallen to 95.5°, became normal, and after nine days the patient was able to leave his bed. On the twenty-second day following his attack he took a ten-hour railway journey and consulted Rasumowsky, who with the help of two therapeutists and three surgeons noted general emaciation, pronounced anemia, and a projecting tumor in the epigastric region, most pronounced to the right of the middle line. The swelling extended to both sides, reaching to a little beyond the line of the nipple. It was most marked when the patient was in the standing posture.

Liver dulness was continuous with that of the swelling.

The relation of the stomach and tumor was not determined. An incision was made first over the most prominent part of the tumor. As this did not afford proper access, a second cut was made in the middle line. The lesser omentum was found tightly stretched over the surface of a fluctuating growth.

The diagnosis made previous to operation was of a gastric ulcer. To enable the surgeon to evacuate the pus which was suspected to exist, and at the same time to protect the general peritoneal cavity from infection, the Paquelin cautery was used in making an incision through the thin border of the left lobe of the liver. Blood and clots escaped together with necrotic portions of pancreatic tissue, as was subsequently determined by microscopic examination.

The cavity was stuffed with gauze, and the patient made a slow but uninterrupted recovery, though for three days he complained of severe pain similar to that which he had experienced during his acute attack.

A small fistula due to the presence of two ligatures did not heal for five months.

An interesting discussion as to the relation of pancreatic cyst and pancreatic hemorrhage follows the report of this case. The author holds that both traumatic and idiopathic hemorrhage into the pancreas may be the starting-point for the development of cysts.

As to the diagnosis, the idiopathic hemorrhages are commonly preceded by dyspeptic symptoms for months, often for years.

Diagnosis is made or can be suggested by the seat of pain, and particularly by epigastric distention and tumor. Rasumowsky states that surgical intervention during the acute period is not advisable. The cases in which an operation was practiced, usually on the basis of a mistaken diagnosis, ended fatally. The bleeding does not take place from a single large vessel but from a number of small bunches; hence if it could be reached it could not easily be checked.

During the acute period, stimulation, subcutaneous and rectal injections of normal salt solution, and, if Massé's theory as to the etiology of the hemorrhage (*i.e.*, the action of hydrochloric acid on the tissues of the glands) be accepted, injections of soda solution into the stomach and into the veins would be indicated.

After the acute period has passed surgical intervention is absolutely necessary, since the resorption of the large exudate can scarcely be counted on, and, moreover, infection of such an exudated place near the alimentary canal is extremely likely to occur.

This large exudate not only interferes with the functions of the stomach, but gives rise to symptoms of intestinal occlusion. Moreover, by its pressure upon the thoracic duct it may interfere with absorption of the chyle from the intestine; thus would be explained the marked anemia frequently characteristic of these pancreatic cysts.

The place at which these cysts should be opened must depend upon their position. On general principles Gussenbauer's route is to be preferred — beneath the greater curvature of the stomach and between this organ and the transverse colon. Sometimes the route through the lesser omentum or even through the liver itself may be easier.

Many of these apoplectic collections of blood may be best reached from the lumbar region. Removal of clots and of fragments of pancreatic tissue should be accomplished with great gentleness. If bleeding occurs irrigation with hot water and firm packing are indicated.

THE OPERATIVE TREATMENT OF VARIOUS INTERNAL DERANGEMENTS OF THE KNEE-JOINT.

WALSHAM (*British Medical Journal*, July 29, 1899) classifies the derangements of the knee-joint which are amenable to surgical intervention as follows:

Loose bodies; detachment or displacement of the semilunar cartilages; enlargement with nipping of hypertrophied synovial fringes; and elongation of the ligamentum patellæ.

All of these conditions may be attended with somewhat similar symptoms, namely, effusion into the synovial sac, a feeling of weakness or disability in the joint, some limitation in the range of flexion and extension, pain, often sudden, and even excruciating during certain movements, and at times a sensation of something slipping in or around the joint. There is, further, generally a history of some injury more or less severe, such as a fall or blow on the knee, or a sudden strain or twist of the joint.

The most obvious sign, perhaps, attending the various derangements is the synovial effusion, and the case is probably diagnosed, and correctly, as one of synovitis; but it is synovitis and something more, and unless this additional something is made out, except it consists in a mere rupture of some ligamentous fibers, the routine treatment of synovitis will not as a rule cure the patient. The progress of such cases is this: after treatment by rest, evaporating lotions, bandaging, perhaps a splint, the synovitis subsides, but recurs as soon as the patient begins to get about, recurrence being then often attributed to a fresh twist or strain. It is usually after there have been several such recurrences that these cases have come under notice.

Where a loose body is the cause of the trouble the diagnosis is usually easy. It can be felt as a rule, as we all know, to slip about in the joint, not only by the surgeon, but by the patient himself. The diagnosis is not, however, always obvious.

The diagnosis between a detached semilunar cartilage and a hypertrophied synovial fringe is sometimes far from easy. The characteristic signs of a detached semilunar cartilage as given in our text-books—namely, a sudden locking of the joint and evident projection of the displaced cartilage — is not common. More often the diagnosis has been based on a peculiar creaking or sudden click or snap over the inner portion of the joint combined with a partial locking and some limitation of movement, and perhaps slight swelling or pain on pressure over the situation of the cartilage.

The signs of hypertrophied synovial fringe are very similar, but there is not as a rule any locking of the joint, nor much, if any, limitation of movement, and the fringe may frequently be felt to roll like a soft pad under the finger when applied over the line of the articulation. The disability, however, is at

times quite equal to that produced by a displaced cartilage; but it will be found on careful questioning that the pain only occurs when the joint is semiflexed, and then not unless the semiflexion is combined with some slight lateral twisting of the tibia on the femur —that is, the semiflexion separates the articular surfaces and the twisting movement carries the hypertrophied fringe between them, where it becomes nipped when the limb is again straightened.

More than one fringe, it is well to remember, may be present; indeed, at times a series of fringes extending from the articular surface along the margin of the alar ligament may exist.

An elongation of the ligamentum patellæ is less common, but as it gives rise to symptoms similar to those of the other conditions mentioned, it may be readily confounded with them. As in the case of a loose body, a detached semilunar cartilage, or nipped synovial fringe, the patient may fall to the ground with sudden pain, the joint becoming momentarily locked. It will be found on careful inquiry that what really happened here was that the patella, consequent upon its elongated ligament, momentarily slipped over the external condyle, allowing the patient to fall. On measuring the ligament will be found half an inch to an inch longer than that of the opposite limb; and when the patient sits with the knee flexed at a right angle, the patella rests on the front surface of the condyle, so that its anterior surface, instead of being directed forward and slightly upward as in the normal knee, will be found to look directly upward.

For all these conditions, excepting the last, it may sooner or later become necessary to open the knee-joint if a radical cure is to be obtained. If a loose body is present its removal is practically the only reliable method of giving relief. When an apparatus has failed, when a patient is unwilling to give up athletic exercises, or is a candidate for the services, or is going abroad where apparatus could not be readily mended, or is engaged in such occupation as necessitates mounting scaffoldings, ladders, etc., where the breaking of his instrument might subject him to sudden locking of the joint and to a consequent serious fall, the joint should be opened without delay.

With proper precautions the knee may be freely exposed and explored with a reasonable degree of certainty that no harm will result. The precautions are the five following:

1. *Preparation of the Patient.*—He should be confined to his bed or couch for three or four days to a week, the secretions and diet regulated, the limb firmly secured to a Macintyre or such other back splint as it is intended he should wear after the operation, and the skin in the region of the incision rendered thoroughly aseptic. Neglect of these precautions may lead to most serious consequences. If any synovial effusion is present, this should be got rid of by appropriate treatment before the joint is opened. If this is not done there is considerable risk of septic trouble spreading to the interior of the joint should any superficial stitch suppuration accidentally occur.

The ascepticizing of the skin, it goes without saying in these days, is of the highest importance, especially in hospital patients, in whom the skin of the knee is often thickened and begrimed, and many washings and purifications are necessary to get rid of the excessive epithelium.

2. Arrest of all hemorrhage before the capsule is opened by forcipressure, torsion, or ligature, if necessary, and the thorough cleansing of the joint after the operation from all blood-clot by thoroughly flushing out the cavity with a warm mild antiseptic lotion, such as boracic acid.

3. *Accurate Suture of the Synovial Membrane and Capsule.*—Silk may be used with safety if kangaroo tendon is not available. The serous surfaces of the synovial membrane should of course be placed in contact, and the capsule drawn together by the continuous method of suture.

4. Absolute rest on a well-fitting back-splint till the skin wound is soundly healed, firm pressure being applied by a bandage over the joint to prevent oozing.

5. *Early Passive Movements and Massage.*—These are usually begun on the fourteenth day, the patient being up and walking about on the twenty-first day. The early movement is most essential to success. It prevents the formation of adhesions, whilst the massage promotes absorption of any excess of inflammatory products in the healing of the wound.

OPERATIVE INTERVENTION FOR TUBERCULOSIS OF THE KIDNEY.

In an editorial in the *Medical News* of August 12, 1899, based upon a communication of Reynolds printed in the same journal, the writer thus comments upon the present

status of operative interference in cases of renal tuberculosis:

"We no longer believe that microorganisms can pass through a healthy kidney, and therefore when we are able to demonstrate in the urine taken directly from a ureter the presence of tubercle bacilli, it points infallibly to the existence of a tuberculous focus somewhere in the urinary tract of that side. The indication thus furnished for nephrectomy is an absolute one.

"It must be remembered, moreover, that the recent labors of Caspar and Nitze in Berlin, and of their followers all over the medical world, have made it evident that catheterization of the ureters in the male is very often, certainly in a majority of cases, not only possible but comparatively easy. The collection of the urine directly from the ureter gives much more reliable information than does even an exploratory incision, since the external surface of the kidney when exposed to inspection may be perfectly healthy, and yet a tuberculous focus exist in the interior of the organ. Communications of pathologic processes occur much more readily with the pelvis of the kidney than they do with its external surface. When the tuberculous foci are very limited in extent and therefore most hopeful for operation, they will often permit the discharge of tubercle bacilli into the urinary passages. The chances for early diagnosis and operation are with this method rendered very promising indeed.

"It would seem, then, to be only a question of a short time until the puzzling cases of progressive tuberculous renal trouble running their course without any definite pathognomonic symptoms that reveal the real cause with any assurance to ordinary diagnostic methods will cease to be the *opprobrium medicinæ* they have been up to the present time. The most striking uniform symptom in such cases is often a hopelessly aggressive emaciation, which yields to no medicinal treatment, and so makes them veritable nightmares for the medical attendant having them in charge."

PERITONEAL ADHESIONS FOLLOWING CONTUSION OF THE ABDOMEN.

NOCAK (*Centralblatt f. Chirurgie*, No. 37, 1899) notes that contusion of the abdomen is often followed by extensive adhesions gluing the intestines together or to other organs within the abdominal cavity, and causing persistent and exhausting colic, and obstinate constipation. He reports four cases of this nature operated on by Crédé. The adhesions were freed, and the patients were either greatly relieved or completely cured. It is noteworthy that the symptoms often developed long after the injury, and, indeed, at a time when the patient had almost forgotten it.

THE EARLY RECOGNITION AND MANAGEMENT OF MALIGNANT DISEASE OF THE DIGESTIVE SYSTEM.

EINHORN (*New York Medical Journal*, July 29, 1899), after calling attention to the diagnostic helps afforded by the stomach-tube and the chemical analysis of the gastric contents, states that our methods are still comparatively crude, and as a rule permit us to recognize the malignant affection at a stage when it has already progressed to a considerable extent. The conditions under which the diagnosis is justifiable are summarized as follows:

Gradually developing dysphagia and the presence of a stricture in the esophagus, especially if a particle of tumor showing the characteristics of cancer has been brought up with the tube, or the above symptoms, with frequent small hemorrhages, make the diagnosis of malignant disease positive.

With reference to the stomach and pylorus, the following rules upon which to base a positive diagnosis of cancer are suggested:

1. If particles of tumor are found (in the wash water or in the tube) which under the microscope reveal the characteristic picture of a malignant growth.

2. The presence of a more or less large tumor with an uneven surface, belonging to the stomach and associated with dyspeptic symptoms.

3. The presence of a tumor associated with frequent hematemesis.

4. Constant pains, frequent vomiting, ischochymia, emaciation — all these symptoms being quite permanent and not extending over too long a period of time (six months to a year).

5. Tumor and ischochymia.

6. Emaciation, ischochymia, presence of lactic acid.

7. Constant anorexia and pains, not yielding to treatment, accompanied by frequent small hemorrhages of coffee-ground color.

For the small and large intestines the following points will prove of service in making the diagnosis of cancer:

1. If by abdominal or rectal palpation a tumor can be detected which is situated in the small or large bowel, and accompanied by symptoms of cachexia and disturbances of defecation.

2. The presence of a tumor as just described, and the discovery of small particles of the neoplasm in the evacuation giving microscopically the appearance of a cancerous growth.

3. Gradually increasing disturbances of the bowel for a few months in a heretofore healthy person, accompanied by cachexia and symptoms of a beginning or already developed stricture of the bowels, and the presence of a small particle of growth in the stools giving as above, microscopically, the picture of cancer.

After having thus summarized the conditions under which a positive diagnosis of malignant disease of the digestive system can be made, let us see how the diagnosis can be established early. There are no new points which can be suggested for this purpose. A thorough examination of the physical state of the patient — paying strict attention to all our usual methods in this direction—and a full knowledge of the history of the case, will permit us to discover malignant disease comparatively early. In quite a number of instances we shall not be able to make a positive diagnosis of cancer, but our suspicions of a malignant trouble will be aroused. Here frequent examinations and further observation of the case are of intrinsic value. Sometimes examination under narcosis may afford better results. In rare cases, in which a probable diagnosis of malignant disease can be made, an exploratory laparotomy with the view of establishing the diagnosis and performing a radical or palliative operation will be required.

Having made the diagnosis of malignant disease, the question arises, What shall be done for the patient? The following may be given in brief as an answer applicable to the digestive system in general:

1. Whenever the tumor is accessible for operation, and there is the slightest hope of curing the patient, the complete extirpation of the growth should be performed.

2. If the tumor is not accessible for operation, or the entire removal of the malignant disease is practically impossible, palliative operations will serve to alleviate suffering and prolong life, and should be undertaken in cases requiring them.

3. Cases of malignant disease operated upon, as well as those without operation, require for their treatment and management a skilful physician, who is able to lessen suffering and nearly always also to lengthen life, even under the most trying conditions.

Cancer of the esophagus and cardia does not for the present permit of any radical operation. As soon as the diagnosis is positive and the dysphagia is such that the patient is not able to partake of sufficient liquid and semiliquid food, in order to maintain his weight, gastrostomy should be performed wherever feasible.

Cancer of the stomach and the entire intestinal tract should be operated upon, if discovered early enough. Practically the outlook for a cure after a radical operation of some portion of the intestinal canal becomes less encouraging the farther away from the anus the tumor is situated. Malignant disease of the pylorus can often be recognized quite early through the ischochymia which it usually produces. In these instances a laparotomy should be performed as soon as possible and the pylorus resected, with establishment of a new communication between stomach and duodenum if possible; if not, a gastroenterostomy alone should be made. The latter operation is in many cases of decided benefit, facilitating nutrition and rendering the pains less.

Cancer of the lesser curvature of the stomach or of the posterior wall is usually recognized quite late, rendering radical operations practically impossible. If cardia and pylorus are not involved, there will be no need of operation, and the usual palliative remedies should be administered. The same may be said also of cancer of other portions of the stomach not involving either cardia or pylorus, in which a radical operation does not appear possible.

Cancer of the rectum can be recognized at an early stage, and resection of the neoplasm is here accompanied by brilliant results. If the tumor is located farther up in the large bowel or the small intestine, the results of an operation are not so promising, for here the recognition of the growth is possible only at an advanced period, and by that time adhesions with other organs and cancerous infection of the glands have already taken place.

Excision of the tumor and resection of the intestine in the neighborhood of the neoplasm, with an end-to-end anastomosis, should be practiced whenever feasible. In case, however, total resection is impossible, an entero-enterostomy or enterocolostomy, or, if the

cancer is situated in the rectum, a colostomy (artificial anus), will be of benefit. These operations are palliative in nature and prolong life, at the same time making it more comfortable. They are intended to allay the symptoms of obstruction and to carry the fecal matter over a new route, not passing through, and thus not irritating, the cancerous area. In some instances of inoperable cancer of the rectum curettage, followed by the application of the thermocautery, may be of benefit for a short time.

RECURRENT SPONTANEOUS EPISTAXIS.

NATIER (*La Parole*) holds that by means of the mirror and specula commonly employed in the practice of rhinology the seat of bleeding from the nose can be accurately determined and effectively treated, reporting in detail a number of cases as proof of this contention.

The hemorrhage always takes place from the septum, and by predilection from the cartilaginous septum, about four-fifths of an inch behind the free border and an equal distance from the floor of the nose. The seat of epistaxis can often be perceived by lifting the tip of the nose and allowing light to fall in without the use of the speculum. It is rarely bilateral. It is often persistent, recurring without treatment for many years.

The immediate treatment of these cases consists in packing with antiseptic cotton or gauze. The curative treatment, designed to prevent recurrence, consists in transformation of the ulcerated and friable mucous membrane from which the blood flows into cicatricial tissue. This is accomplished by cauterization. The author prefers the galvanocautery, the region having previously been anesthetized with cocaine.

RESECTION OF NEARLY TWO METERS OF SMALL INTESTINE, AND ITS EFFECT ON DIGESTION.

CARL SCHLATTER (*Correspondenz-Blatt f. Schweizer Aerzte*, July 15, 1899; quoted in the *British Medical Journal*, July, 1899) publishes the following case:

An Italian, aged twenty-three, was stabbed in the hypogastrium at 7 P.M. on October 9, 1898. He fell to the ground with intestine protruding from the wound, but with assistance walked some 300 meters to his home, where a provisional dressing was applied; he was brought in an ambulance to the Zurich clinic at 3 A.M. on October 10. About two meters of small intestine, the greater part deep blue or black in color, with quite dull serosa, was found protruding from the right hypogastrium; there was no collapse. Under ether (4 A.M.), when the skin and edges of the wound had been disinfected, it was found that the prolapsed intestine, jammed fast in the wound, was already partially necrotic; reposition was out of the question, and the only hope lay in total resection. Enough intestine was carefully drawn out to allow the operation to be performed through sound tissue. Wolfler's compressors were applied to each end, Péan's forceps closing the intermediate part and successively securing the mesentery as it was rapidly divided along its intestinal insertion. Union of the defect in the mesentery after the forceps had been replaced by ligatures was accomplished by separate silk sutures. The bowel was brought end to end by three rows of suture. The wound was then enlarged to permit reposition, when it was found that the constricting ring was formed by the slit in the skin, which lay three fingerbreadths above and parallel to Poupart's ligament; on the peritoneal side the wound was much larger.

As there was no effusion of blood into the peritoneum or sign of any opening into the bowel, the abdominal wound was closed by suture in tiers. The resected gut was 192 centimeters in length unstretched, and was entirely from the ileum. Except for an attack of urticaria there was hardly any reaction. On November 3 the patient was feeling quite well, on full diet, and weighed 64 kilos; on December 7 he was discharged, weighing 75 kilos, looking well, with a good appetite, and almost daily stool. Careful observation of the assimilation of albuminoids and fat was carried out for nine days; the patient was left entirely free in his choice of the kind and amount of the ordinary food of the hospital, and consumed a surprising quantity of nitrogenous and fatty matter. The loss of nitrogen was on the average 10.47 per cent, about the extreme normal loss, but the loss of fat was increased, being on the average 13.91 per cent, with variations from 9.47 to 20.26 per cent. In Fantino's patient, from whom 310 centimeters of ileum was removed when he was sixty years old, the loss of nitrogen was on the average twenty-nine per cent, that of fat as much as twenty-three per cent, varying from 17.2 to 34.3, but in spite of deficient assimilation wasting was avoided by overfeeding. Dreesman collected twenty-six cases (including his own patient) of resection

of more than one meter of the small intestine; seventeen survived the operation, five of whom suffered from digestive troubles; in all the other twelve the digestive functions were uninjured, but in ten the resected intestine measured less than two meters. There have been only six cases of the resection of more than two meters of the lesser bowel: 205 centimeters (Kaoberle); 209 centimeters (Kocher); 215 centimeters ileum (Dreesman); 234 centimeters ileum (Shephard); 310 centimeters ileum (Fantino); and the most extensive, 330 centimeters of small intestine (Ruggi) in a boy of eight for circumscribed peritonitis. Only two of these patients escaped with the digestive function unimpaired, namely, the first (205 centimeters) and the last (330 centimeters). Dreesman concluded that resections of less than two meters could be borne with impunity when there were no complications, but only young people could support a loss of greater length without the digestion being impaired.

AN EFFECTIVE TREATMENT OF VESICAL HEMORRHAGE WHEN CAUSED BY PAPILLOMATOUS GROWTHS.

HERRING (*British Medical Journal*, July 29, 1899), following the method practiced by Sir Henry Thompson, is able to report a number of cures by injection of silver nitrate solutions. The diagnosis of the cases was invariably confirmed by removing a portion of the tumor and submitting it to microscopic examination. Such specimens are usually obtained by washing out the bladder freely with warm sterile water, examining the débris brought away for shreds of tissue, and mounting them at once.

The instruments used are a soft, slightly elbowed catheter with the eye situated near the end, and a four-ounce india-rubber bottle furnished with a brass taper nozzle and stopcock, together with a standard solution of one grain of nitrate of silver to one drachm of distilled water, acidulated with a small quantity of free nitric acid.

The injections are commenced by adding half a drachm of the standard solution to four ounces of warm water, and the strength is gradually increased every day or two until one or even sometimes two drachms has been added. The strength should be so regulated that no pain, increased frequency of micturition, or straining will follow the injection. Occasionally, when the maximum strength has been in daily use for a considerable time, the bladder becomes irritable, and the strength should be reduced, but the treatment should not be stopped.

As soon as the patient has learned to inject himself efficiently — throwing into the bladder half the contents of the bottle, retaining the solution for a few seconds and then letting it run off, and repeating the same process with the second half — he should do it daily; at night, perhaps, is the best time, for it is always advisable to rest afterwards. Before a patient can be trusted to make the injection himself, it is necessary to give him a few lessons in a uniform and systematic way of doing it, so as to insure perfect aseptic conditions, absence of injury or irritation to the organs, and the desired effect of the nitrate in the bladder. He should continue this without intermission for four, five, or six months, reaching his maximum strength of solution some five, six, or more weeks from the commencement of the treatment. If then bleeding has ceased, as it should have done, he may inject every other day for six months longer, and afterwards every third day for a variable period. A patient having been subjected to this long course of treatment may discontinue the application, even for a year, without any symptoms recurring; but he should return to daily injections—commencing with the minimum strength and gradually increasing — immediately blood reappears in the urine. In this way hematuria, and also the growth, may be permanently controlled, and the patient may live in comfort for many years.

The treatment at the start may occasionally increase the hemorrhage, but after several applications the blood lessens in quantity and finally disappears. In a few cases it never entirely ceases throughout the treatment, and is especially noticeable in small quantities at the time of catheterization, though every precaution may have been taken to introduce the instrument with care. It is apparently caused by the catheter damaging a growth situated near the neck of the bladder. In such a case, when the treatment is discontinued the hemorrhage ceases, and the after-effect may be quite satisfactory.

During the treatment shreds of tumor may often be found in the urine, differing very much from the characteristic papilloma. To the unaided eye the firm, pinkish, semitransparent tissue, composed of numerous rounded villi, has given place to a soft, white, opaque, and irregular mass. Microscopically the dis-

tinct villi, composed of easily distinguished translucent cells, arranged in irregular layers around the central blood-vessels filled with corpuscles, have disappeared, and it is difficult to make out either villi or cells; the cell substance is cloudy and granular, and the blood-vessels have shrunk, effects produced doubtless by the continued local applications.

SOME EXPERIMENTS ON THE CURE OF ANTHRAX.

SMITH and GUNN (*Australasian Medical Gazette*, Aug. 21, 1899) prove experimentally that sheep can be cured eight hours after the injection of a dose of virulent anthrax sufficient under ordinary circumstances to kill the animal within thirty hours. It follows that if one of the animals more susceptible to this disease can be so successfully treated, we have every reason to believe that said treatment for virulent cases of anthrax in man can be equally successful if injected around the seat of infection of wound anthrax, while in cases of general anthrax or in wool-sorters' disease the injection of excessive quantities would materially increase the chances of recovery of a patient.

By an immune sheep the experimenters mean one that has been vaccinated against anthrax, and the immunity of which has been subsequently proven by its perfect resistance to the injection of the virulent germ. Minimum doses required for sheep are 40 cubic centimeters if used four hours after the injection of 0.1 cubic centimeter of a cultivation of virulent anthrax, or 150 cubic centimeters if used six hours afterward, and 250 cubic centimeters if used eight hours afterward.

If the initial dose is too small, future injections are of little value. The injection of large quantities of the serum appears to have no ill effect upon the animal.

KERNIG'S SIGN IN MENINGITIS.

HERRICK (*American Journal of the Medical Sciences*, July, 1899) thus describes Kernig's sign: If a patient with meningitis be made to sit up, as on the edge of the bed, the thigh therefore being at a right angle with the body, it is found extremely difficult to extend the leg because of the presence of a marked flexor contracture. To quote Kernig: "The phenomenon is so striking, the difference between nothing and something ('zwischen null und etwas'), between the complete absence of the contracture while the patient is lying down and its presence when the patient sits up, is so plainly perceptible, that it is well worth while to pay especial attention to this symptom and to examine for it in every case."

Kernig saw fifteen cases of meningitis, in all of which he found the symptom. In eight cases there was confirmation of the diagnosis by autopsy. Of the fifteen cases, thirteen were epidemic cerebrospinal meningitis, one tuberculous, one suppurative. Kernig failed to find the sign in many diseases other than meningeal affections. In six cases, however, where there was not acute meningitis, the sign was more or less marked; yet in all these he found some pial trouble—edema, intermeningeal hemorrhage, circumscribed meningitis, chronic meningitis, general carcinosis. Kernig believes the sign appears in meningitis as early as the rigidity of the neck, and that it is late to disappear.

From the study of cases made by Kernig, Bull, Henoch, Friis, Blümm, and Netter, with the observations recorded by Herrick, it seems justifiable to regard Kernig's phenomenon as present in the majority of cases of meningitis—say eighty to ninety per cent—and as only exceptionally present in other affections. Other and more definite conclusions concerning it seem unwarranted at present. That it may occasionally be absent in meningitis and occasionally present in diseases other than meningitis should not cause it to be wholly discarded as of no value. The truly pathognomonic symptoms are few. Rose spots in typhoid, herpes in malaria and pneumonia, absence of free hydrochloric acid in carcinoma of the stomach, murmurs in endocarditis, choked disk in cerebral tumor, and scores of other symptoms, are not pathognomonic, but rightly deserve attention, when found or when absent, as helping to make up or modify the symptom-complex of a disease, the method of diagnosis upon which as yet clinicians are compelled largely to rely.

As to the technique of eliciting this sign, it is exceedingly simple. The patient may be made to sit up on the edge of the bed with the legs hanging down, thus bringing the thighs at right angles to the body, when extension of the leg can be attempted; or the thigh can be brought at right angles to the body as the patient lies in bed on the side, or preferably on the back, and the leg then extended. The only requirement seems to be that the thigh should be placed at a right angle with the body before the attempt is

made to extend the leg. Not infrequently in delirious patients—*e. g.*, in delirium tremens—a little patient, gentle force must be used before the jerking and tense muscles yield. The same is true of some spastic conditions. But where Kernig's contracture is present patience and gentleness do not cause the muscles to yield, and the back of the patient can generally be lifted from the bed without the knees giving way. This procedure is often accompanied by evident pain to the patient. In some cases the leg and thigh will make an obtuse angle of no more than 110° or 120°. As Kernig says, the test in many cases is most striking, particularly in those patients where thigh and leg in the recumbent position are extended and apparently lifeless, but in the test position reveal a most intensely rigid contracture, often with evidence of acute pain. In testing for Kernig's sign there must be excluded those cases in which local causes could interfere with the proper extension of the leg, such as rheumatic or other form of arthritis of the hip or knee, myositis, old contractures from nervous diseases, and sciatica. The phenomenon can be well imitated by the latter condition.

OPERATION FOR PERFORATION IN TYPHOID FEVER.

RYAN (*Australasian Medical Gazette*) operated on a farmer thirty-eight years old, who had been ill in bed with typhoid fever for eight days. The patient suddenly experienced agonizing abdominal pain, followed by a drop in temperature to 98.2° F., shortly rising to 100.8° F. The abdomen rapidly became distended. He was operated on two and one-half hours from the onset of the pain. There were flakes of lymph adherent to the intestines, and the pelvis contained about a pint of offensive fluid. A small opening was found eighteen inches from the cæcum, which was closed, and the whole of the pelvis and abdominal cavity was thoroughly irrigated with hot sterilized water. The wound was closed without drainage. The patient died in thirty-six hours of septic pneumonia, due to inspiration of vomited matter.

A CASE OF PUERPERAL SEPTICEMIA TREATED WITH ANTISTREPTOCOCCIC SERUM.

HAMILTON (*Australasian Medical Gazette*, Aug. 21, 1899) calls attention to the fact that the use of antistreptococcic serum in no way dispenses with the necessity for local treatment, as probably in all cases of puerperal septicemia there is a mixed infection, and other organisms beside the streptococcus pyogenes are present in the uterus and capable of causing a fatal toxemia if their growth is not prevented.

In her first attack this patient was treated by curettage and irrigation with antiseptic solutions. She was confined to the hospital for nine weeks, but finally recovered. Two years later she had a similar attack of about the same severity. The treatment practically was the same as before, except that eighty cubic centimeters of the Pasteur antistreptococcic serum was injected. Each injection of serum was marked by a decided fall in temperature and pulse. This last attack confined her to her bed for three weeks and was not attended by complications.

The author states he has used this serum in two or three other cases, but never with such marked effect as with this particular patient.

Reviews.

GENERAL PATHOLOGY. By Dr. Ernst Ziegler. Translated from the Ninth Revised Edition, and Edited by Dr. Albert H. Buck.
New York: William Wood & Company, 1899.

The title-page and author's preface of this volume are somewhat puzzling. On the title-page it is noted that the book is published in 1899, yet Dr. R. Mead Bolton is named as one of the translators and as living in Philadelphia, although he has been away from this city for several years, and we believe is at present teaching in St. Louis. Further than this, the date of the author's preface of the ninth German edition is November, 1897, almost two years back.

Ziegler's Pathology is a too well known book to make a review necessary. It has been and will continue to be one of the standard works upon this important subject, and while, so far as we understand it, neither the translators nor the editor have attempted to alter or add to the text, the work has been done so well that none of the disadvantages of a translation are manifest in the volume before us. Taking it all in all, the illustrations are also good for a book of this character, although we think they might be better. Figure 393, which is meant to show a gelatin plate containing colonies of small bacilli, is practically entirely useless in the copy which is before us. It is in the text

that we find the chief value of the work, and those who know Ziegler's Pathology appreciate its value, while those who do not ought to show their appreciation by buying it, thereby obtaining a large amount of most useful information.

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M.D. Sixth Edition, Thoroughly Revised and Enlarged.
Philadelphia: P. Blakiston, Son & Co., 1899.

Dr. Hughes's book on practice is a small octavo of a little over 600 pages, bound in a good flexible cover and printed in rather small type, which however is of a character which can be easily read. The fact that it has reached the sixth edition within comparatively a few years after it was published shows that it has proved itself a useful and competent manual, and an examination of the pages of this sixth edition shows why this success is present. Its success depends upon the fact that it is concise, yet not so abbreviated as to leave out important material; that each edition has been well brought up to date—in other words, that it has been really revised by the author; and finally, while the author takes care in many instances to show that the statements are made by others, the book embodies in certain instances his own personal experience, which lends an added charm to the compilation. We do not know of any small book upon practice which we can so highly recommend as this one, and we do not doubt that its popularity will continue.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D. Volume III, September, 1899.
Philadelphia and New York: Lea Brothers & Company, 1899.

This, the third, volume of Progressive Medicine deals with Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood-vessels; Diseases of the Skin; Diseases of the Nervous System; and Obstetrics. That upon diseases of the thorax is by Dr. William Ewart, of London, whose article shows that he has made careful research in the literature of medicine during the past year, and has culled from it what he believes to be the most useful practical points which can be utilized by his fellow practitioners. Indeed, we think that the practical character of his article is its chief value, and surely any one who reads it will see, as we have seen, that he has touched upon all the themes which the title of his paper covers.

To the general practitioner the article upon the skin by Dr. Stelwagon may not possess the interest that that of Dr. Ewart possesses; nevertheless, there are many points in which it will prove of value to the active physician, and at the same time it is an able *résumé* of dermatological literature of the past year, prepared by one who in virtue of large experience and long practice is thoroughly qualified to sift the useless from the useful.

The article upon nervous diseases, by Dr. Spiller, is typical of its author, in that it is thorough, carefully prepared, and accurate.

Another department which will prove of very great interest to the general practitioner is that on obstetrics, by Dr. Richard C. Norris, which is one of the best which has been contributed to Progressive Medicine since this work was begun. Not only does it mirror the present status of obstetrics, but it brings home to each practitioner the points which he needs for attending his parturient and puerperal patients.

KIRKE'S HANDBOOK OF PHYSIOLOGY. By W. Morrant Baker, F.R.C.S., and Vincent Dormer Harris, M.D., F.R.C.P. Fifteenth Edition. Revised by Warren Coleman, M.D., and Charles L. Dana, A.M., M.D. Copiously Illustrated.
New York: William Wood & Company, 1899.

Once more this manual of our medical student days appears in a new dress, thoroughly revised and somewhat enlarged by competent hands. At least one of the earlier editions, the thirteenth, was published by the well known house of Blakiston, but the fifteenth appears under the imprint of William Wood & Company.

The copious illustrations, many of which are colored, have always been one of the valuable principles of this singularly successful manual. Other manuals on physiology may come and go, but Kirke's "goes on forever," and its intrinsic merit must be extraordinary that it can survive through all these years the competition of more youthful rivals. The cause of this survival largely depends upon the skilful way with which each revision has been prepared.

A TEXT-BOOK OF PHYSIOLOGY. By Winfield S. Hall, Ph.D., M.D. Copiously Illustrated in Colors and Black.
Philadelphia and New York: Lea Brothers & Company, 1899.

Dr. Hall, who is a graduate both in philosophy and medicine at the University of Leipsic, and who was at one time a student of Carl Ludwig, one of the immortals in

physiology, has prepared this work in a manner highly characteristic of the science of physiology as it exists to-day and of the training which he has received. In some respects the present volume differs from any other book on physiology with which we are acquainted, although the more recent publications on this science have been approaching nearer and nearer to the scheme or plan followed by Dr. Hall. His first chapter is one concerning the physiology of the cell, or cytology, and it is unnecessary for us to state that in the present and future this subject must be of absorbing interest to the physiologist, since it deals so intimately with life. The second chapter is upon the physiology of contractile and irritable tissues. This chapter is of very great interest and is very well written, dealing as it does with the very important changes in the tissues which take place under the circumstances we have named. After this, in Part 2, come chapters in special physiology, including nutrition, the motor sensory activities, and reproduction, and including under nutrition the study of the physiology of the circulation, respiration, digestion, absorption, metabolism, and excretion. Then follow chapters dealing with the skin, the nervous system, the muscular system, and finally chapter 13 deals with reproduction.

One of the things which strike us most forcibly in reading these pages is that while the author has necessarily used a large amount of information from other books, the work is emphatically written by Dr. Hall, and we feel as if he were actually giving us information himself, rather than giving the words of others; and further, one feels confident, not only from the knowledge of his ability as a physiologist, but also from the character of the statements made, that these are physiological *facts*, and therefore can be put away in one's mind as being worthy of credence. We do not know how well the book will suit undergraduate students in medicine in the early years of their study, but certainly, to the student who is in a few months to go up for his final examination in physiology, the book can be cordially recommended, and it is one which all teachers of physiology should possess and carefully read. It is not often that a book which does not deal with practical things in medicine appeals to us in the way in which this one has done. It is one of the books which are placed at our right hand for careful further study and reference.

THE NERVOUS SYSTEM AND ITS CONSTITUENT NEURONES. By Lewellys F. Barker, M.D. Illustrated with Colored Plates and Engravings.

New York: D. Appleton & Co., 1899.

This large octavo volume of over 1100 pages is a monument to the learning and industry of Dr. Barker. In it he has presented the rich results of the more recent studies which have been made into the minute anatomy of the central and peripheral nervous system, and has embodied, in an invaluable manner, the present literature of this important subject, arranging it so consecutively that we pass from chapter to chapter by a series of steps in knowledge which are easily taken because of his lucid manner of writing.

Almost every page contains foot-notes referring to valuable monographs and essays, and in many instances these foot-notes are accompanied by a few words of criticism or explanation, written by the author, which add materially to their value, aside from their being bibliographical references. It should be distinctly understood that this book does not attempt to be a treatise upon diseases of the nervous system; it is emphatically a contribution of the skilled anatomist, who has devoted much time and original work to the elucidation of conflicting theories and the opening up of new fields in modern neurology.

It is to be regretted that all the illustrations are not equally good, though as a rule the faulty ones are those taken from other authors. To those who desire to become thoroughly in touch with the modern views concerning the anatomy of the nervous system in its relation to diagnosis and disease, this book can be recommended with the greatest possible enthusiasm. It is such contributions to the medical literature in this country which will raise our standard in the scientific world abroad better than any other effort we can make save in true original research.

ON THE RÔLE OF INSECTS, ARACHNIDS, MYRIAPODS AS CARRIERS IN THE SPREAD OF BACTERIAL AND PARASITIC DISEASES IN MAN AND ANIMALS. A Critical and Historical Study. By George H. F. Nuttall, M.D., Ph.D.

Baltimore: Johns Hopkins Press, 1899.

This is an essay of over 150 pages devoted to the theme named in its title, and as its title indicates it discusses all those bacterial and parasitic diseases which have been studied by this and preceding investigators, taking up such important diseases on the one hand as

yellow fever and cholera amongst human beings, and on the other hand Texas fever and "Tsetse Fly Disease" amongst animals. A large number of its pages are devoted to the consideration of the "mosquito malarial theory," with which the readers of the THERAPEUTIC GAZETTE are familiar in part by reason of a paper which has been recently published in our columns.

As may be known to some of our readers, Dr. Nuttall has for a number of years been living in Berlin, where he has been a volunteer assistant in the Hygienic Institute, and prior to this he was associate professor in Johns Hopkins University.

An examination of the pages of this brochure shows that Dr. Nuttall has exhausted the literature on the subject, and has presented us with a review of the greatest possible value, not only because of its own worth but also because it appears at a most opportune moment. The volume closes with a copious bibliography of over 350 references.

PRACTICAL ANATOMY. Edited by W. T. Eckley, M.D., and Mrs. Corinne Buford Eckley. Copiously Illustrated, Some of Them in Colors.
Philadelphia: P. Blakiston, Son & Company, 1899.

This is a large octavo of nearly 500 pages, designed as a dissecting manual for Morris's Human Anatomy. In other words, it is Morris's Human Anatomy boiled down, and the boiling down has been very well done. The cuts which illustrate it are mostly taken from Morris's well known work, and therefore it is unnecessary to say anything in regard to their quality, for every one knows how singularly clear and useful they are. The general typographical appearance of the volume is quite identical with that of Morris's book, and to those students who use this Anatomy we believe that this *vade-mecum* will prove very useful. It certainly can be cordially recommended to students and to those practitioners who wish to brush up their anatomical knowledge, and what practitioner of some years does not need to do this?

HANDY BOOK OF MEDICAL PROGRESS. By Charles Warrenne Allen, M.D., and Jacob Sobel, A.B., M.D.
New York: William Wood & Co., 1899.

We confess we are at a loss to understand exactly what function this book is meant to fulfil. It may be described as a sort of small medical dictionary in large type. The various terms are alphabetically arranged, and a definition is given after them; for instance, we learn that Alpha-Eigon is an iodine compound of albumin, twenty per cent, and Alphasol is a proprietary preparation used as an antiseptic for gargles, nasal douches, sprays, etc.; and so on through the book short, abbreviated definitions of various terms are given, not only in connection with drugs but in regard to the names of tests and diseases. To any one who possesses even a small medical dictionary we do not think this book will be of value.

ASTHMA: RECENT DEVELOPMENTS IN ITS TREATMENT. By Ernest Kingscote, M.D., C.M. Illustrated.
London: Henry Glaisher, 1899.

The title of this book does not give a very correct idea of its contents. One would imagine that it dealt entirely with asthma, but as a matter of fact a very considerable portion of its pages deals with disorders of the heart, both functional and organic. It is a monograph prepared by the author, evidently to exploit certain views which he holds in regard to asthma in its relation to circulatory and respiratory conditions, and it closes with a page devoted to "Don'ts in connection with heart disease" and with a "l'envoi," in which the author naively tells us that he does not expect his readers, should there be any, to accept these theories on the subject, though he most fully believes in them, and by a still more naive statement on the last page that the literature of asthma can be found in the Index Catalogue in the Surgeon-General's office.

ILLUSTRATIVE SKIN DISEASES. An Atlas and Textbook, with Special Reference to Modern Diagnosis and the Most Approved Methods of Treatment. By William S. Gottheil, M.D. Portfolios 4, 5, and 6.

We have already reviewed in earlier issues of the THERAPEUTIC GAZETTE the first three portfolios of this very useful atlas of skin diseases. We do not know when we have seen one, in which the illustrations were so good, which could be had at so moderate a price. The colored illustrations are unusually lifelike, and are made by the Photogravure Company of New York.

There is scarcely any department of medical illustration which is so difficult as that of skin diseases, since slight variations in the color entirely change the appearance of the picture. In these the coloring has been unusually well done. Not only is it true that the illustrations are first-rate, but the text is equally valuable, and it is of great value to the physician to find a clear typical picture of a given disease, facing a page upon which careful directions are given for its treatment,

to which directions are added for typical prescriptions which will be found useful in such conditions.

The publication is one which, either in the form of separate portfolios or in a bound volume, which will ultimately be issued when the folios are completed, can be possessed with advantage by any general practitioner or specialist in skin diseases.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By George M. Tuttle, M.D. Illustrated in Colors and in Black.
Philadelphia and New York: Lea Brothers & Company, 1899.

This small octavo volume of nearly 400 pages belongs to Lea's series of text-books, with many of which the profession is already familiar. It is emphatically a compilation or result of "boiling down" information obtained from larger and standard works, and in the preface we learn that the largest amount of information has been abstracted from the well known treatise of Dr. Holt, of New York, upon Pediatrics.

The various chapters in the book deal with the healthy infant and feeding in infancy; the diseases which are met with in infancy as they affect various portions of the body; and finally there are closing chapters upon Infectious Diseases.

To the student who desires to prepare himself for an examination in the branch of diseases of children, and who has not time to take up and read with care the more extensive text-books, this one can be cordially recommended.

MINOR SURGERY AND BANDAGING. Including the Treatment of Fractures and Dislocations, the Ligation of Arteries, Amputations, Excisions and Resections, Intestinal Anastomosis, Operations upon Nerves and Tendons, Tracheotomy, Intubation of the Larynx, etc. By Henry R. Wharton, M.D. Fourth Edition, Thoroughly Revised and Enlarged, with 502 Illustrations.
Philadelphia and New York: Lea Bros. & Co., 1899.

The favorable reception accorded to Wharton's three previous editions of this book, and the universally commendatory reviews which have appeared in this and practically all journals, instance no more clearly than does this fourth edition of his work the admirable manner in which the art of minor surgery and bandaging has been set forth. The illustrations are particularly well chosen, since in practically all cases they are supplementary to the text, making it more readily understood. The Section upon Surgical Bacteriology, and the Preparation of Materials used in Aseptic Operations, will prove most useful, because of the clearness of the teaching and the orderly manner in which it is set forth. The chapter upon Anesthesia, founded as it is upon a wide experience, should be carefully studied. The addition of articles upon Tracheotomy, Intubation of the Larynx, Ligation of Arteries and Amputations, Resections, Operations upon the Kidney, the Colon, and the Bladder, Gastrotomy, etc., distinctly increases the value of the work, especially to medical students.

A COMPEND OF GYNECOLOGY. By William H. Wells, M.D. With Illustrations. Quiz Compend No. 7.
Philadelphia: P. Blakiston, Son & Company, 1899.

This second edition of Wells's Quiz Compend on Gynecology includes the many excellent features of the first edition, together with a much fuller consideration of the field of operative gynecology. Whatever may be the merits and defects of these small books upon special subjects arranged for the use of students, and particularly, sometimes solely, for the purpose of helping them successfully to pass their examinations, it is evident from the popularity which the best of them have attained that they have proven useful not only to the student but to the general practitioner of medicine. This book of Wells's contains all the good points to be found in works so condensed. It is direct and fairly comprehensive, and as such is to be warmly commended.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

In a recent letter I spoke of the expedition recently sent out by the Liverpool School of Tropical Medicine to investigate the causation of malaria. Their labors have so far met with the utmost success, as may be gathered from the following letter of Mr. Ronald Ross: "We have now practically finished our work here. We have found: (*a*) that local species of Anopheles (mosquitoes) carry malaria; (*b*) that these species breed in a few stagnant puddles. These observations support my inaugural lecture at every point. Needless to say we have been most exceptionally lucky to have done so much in so short a time. We shall, of course, wind up with a scientific report to the committee. The practical results to be derived from the

facts which we have obtained will depend solely on the government and the medical profession here. Fortunately, Major Nathan is taking great interest in our work, and so are the colonial doctors. Of course, we could kill most of the Anopheles grubs here in a few hours with kerosene oil, and the thing will be done shortly after Ould arrives. But this won't be enough. It is necessary that the operations be continued systematically, and that some of the most dangerous puddles be drained (costing a trifle). Consequently the Governor asked us to advise. I suggested that one of his medical officers be put in charge of the operations against the mosquito, and that he be given a trustworthy native assistant. The proposal is before the Governor. For many scientific reasons we have come to the conclusion that the truly malarial fever is solely caused by the mosquito—probably entirely by the Anopheles species. We estimate that most of the malarial fever here can be got rid of at almost no cost, except of a little energy on the part of the local authorities. I am having a look round at the other medical and sanitary matters—drainage, conservancy, etc. You will understand, of course, that it will take some time for the public to get the mosquito theory into their heads, but it will come in time. Many thanks for sending Ould. I propose to show him what to do here, and then send him down the coast. It has been quite impossible for us to go over to Accra. We should have had to start a week ago if we wished to catch the *Fantee* on her return. This would have broken off our work here at the most important point. Dr. Strachan, chief medical officer of Lagos, is hard at work on Anopheles there, and you may be sure that the alarm will be raised all down the coast before long. Ould can show them how to hunt up the puddles. Dr. Van Neck has arrived here.—Yours sincerely, R. Ross." (Reuter.)

Those who take an interest in the detailed work of the expedition should read an admirably lucid letter from a correspondent at Sierra Leone in the *British Medical Journal* of September 30, entitled "Anopheles and its Habits; Malarious Foci Localized."

It is to be hoped that similar success may attend the efforts of the workers in the pathological laboratory of the Malay Peninsula in their investigation into the causes of beriberi. A meed of praise for this work is due not only to the scientific experts, but even more so to the exemplary Colonial Secretary, who has made these investigations practicable.

I would call attention to a very practical article on the "Local Treatment of Puerperal Infection," in which Dr. Arnold Lea analyzes forty-eight cases that had come under his own notice. The details of these cases may be studied in the August number of the *Medical Chronicle*, but it may not be out of place to state briefly the conclusions he derives from these cases: (1) That a rise of temperature above 101.4° occurring during the puerperium without obvious assignable cause should lead to a thorough examination of the genital passages. (2) That if the examination of perineum and vagina gives a negative result, a uterine douche should be given with proper precautions. The various accidents that have attended the employment of the uterine douche may be reduced to a minimum by using only a mild antiseptic and injecting it slowly and without pressure. (3) If within twenty-four hours the temperature has fallen definitely, no further exploration is required, but the douche may be repeated if the temperature again rises. The uterine douche practically can cope with sepsis, the source of which lies in the decomposition of lochia or blood-clots, but not with the products of conception retained *in utero*. (4) If at the end of twenty-four hours the temperature is higher, and the pulse-rate has increased, the cavity of the uterus should be explored with the sterilized finger. (5) If the initial rise of temperature is great (103° or over), with or without a rigor, the uterus should be explored at once, not waiting twenty-four hours to observe the effect of a douche. This is more especially indicated if the uterus is bulky, showing delayed involution, since this points to putrefaction of retained products, or to septic endometritis. (6) If clots or placenta are discovered, they should be removed by the finger or curette, a douche given, and a gauze drain inserted for twenty-four hours. (7) In the great majority of cases it is wiser to thoroughly curette the uterus with the object of removing the whole of the decidua and retained products. (8) There is no evidence that curettage, if done with every precaution, favors the spread of infection. In a large proportion of cases the infection is rapidly checked. (9) In very virulent infection early curetting with the object of sterilizing the uterine cavity affords the best chance of a successful result. (10) If curettage entirely fails, it must be repeated or not, according to the local condition present.

The prognosis, however, in the absence of a definite localization of the infective process is bad. (11) In some cases, if curettage fails, and there is no evidence of general peritonitis or of infection of the blood-stream, vaginal hysterectomy, if performed in good time, may be successful. So far as Dr. Lea's statistics go the benefit of this extremely radical procedure seems to be merely a pious expression of opinion, for it was tried but once and then was ineffectual to prevent death. (12) Antistreptococcic serum should be given early and freely in cases of proved streptococcic infection. It is of little use in the advanced stages of the disease.

Schäfer and Swale Vincent have just completed an interesting series of observations on the physiological effects of extracts of the pituitary body. A full account of their observations may be read in the September number of the *Journal of Physiology*. They find that pituitary extracts when injected into the venous circulation may produce either a marked rise or marked fall of blood-pressure, varying with the nature of the extract. In other words, it contains two active principles, which may be conveniently termed *pressor* and *depressor*, to emphasize the contrary effects they produce. The pressor substance is soluble in salt solution and insoluble in absolute alcohol and ether; the depressor substance is soluble in salt solution, in absolute alcohol, and in ether. Neither of the active principles is destroyed by boiling, and each is dialyzable. They confirm Schäfer and Oliver's previous observations that the pressor substance produces its action both upon the heart and peripheral arteries, and that its action is a prolonged one, and Howell's observation that during the period of its action a second dose is inactive or nearly so. On the other hand, the action of the depressor substance is evanescent and can be repeated at short intervals. They find also that the rise of blood-pressure due to the pressor substance may be accompanied by slowing of the heart; this they attribute mainly to the contraction of arterioles and rise of aortic pressure, but in part also to direct action upon the peripheral cardiac mechanism. They also confirm Howell's finding, that the active substances are contained only in the infundibular and not in the hypophysial part of the pituitary body. Subcutaneous injection of the extracts in small animals caused paralytic symptoms similar to those obtained by injecting suprarenal extracts. They also confirm Howell's observation that the characteristic effects are not due to the gray nervous matter of which the infundibular portion is largely composed. It seemed likely that the fall of blood-pressure was due to choline in the extract, which is a known derivative of gray nervous substance; but that this was not the case was shown by the fact that the fall was not affected by administration of atropine, which directly antagonizes the action of choline. They conclude that the depressor action of choline is exerted through the cardio-inhibitory mechanism, whereas that of pituitary extract is a peripheral action upon the musculature of the vascular system.

At the recent meeting of the British Medical Association Dr. Hinshelwood, of Glasgow, made an important communication on the use of euphthalmine as a mydriatic. He uses a five-per-cent aqueous solution of euphthalmine, and finds its rapidity in dilating the pupil almost equal to that of a one-per-cent solution of homatropine; but by previously instilling into the eye a single drop of a one-per-cent solution of holocaine, the euphthalmine solution acts quite as rapidly as homatropine, producing a maximum dilatation of the pupil in about twenty minutes. Moreover, the dilatation of the pupil produced by euphthalmine passes off more readily than that produced by homatropine. Dr. Hinshelwood has also established the point that has been contested by some ophthalmologists, that euphthalmine has some slight paralyzing effect on accommodation; but in this lies its great merit in practical usefulness, that the paresis of accommodation passes away completely in from an hour and a half to two hours from its first instillation. Euphthalmine causes no smarting and no discomfort of the eyeballs; it has no apparent effect on the conjunctival vessels or corneal epithelium; it does not raise the tension of the eye, and produces no toxic effects.

In connection with the pathological laboratory in Malay for the investigation of beriberi, to which I alluded in the earlier part of this letter, it may interest you to learn that Dr. Hamilton Wright, formerly pathologist to the Royal Victoria Hospital, Montreal, will be director. The Government of the Straits Settlement has announced that it will be glad to assist research scholars who take part in the investigation by providing them with furnished quarters, rent free, by giving them the free run of the hospitals and laboratory, by defraying the cost of passage to the Colony, and in such other ways as may

meet the needs of individual cases. I presume the invitation is extended to Americans as much as to Englishmen.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

At the Congress of Obstetrics and Gynecology held at Amsterdam from August 8 to 12, the celebrated French accoucheur, Professor Pinard, compared the value of the three operations for contracted pelvis—symphyseotomy, Cæsarian section, and craniotomy. Dr. Pinard said that Cæsarian section was certainly theoretically an ideal operation, hemorrhage and infection having been reduced to a minimum. The speaker then analyzed the statistics of Olshausen, Leopold, and Zweifel, which are as follows:

Olshausen: 29 operations, 27 recoveries, 2 deaths; 3 infants died.

Leopold: 100 operations, 90 recoveries, 10 deaths; 13 infants died.

Zweifel: 55 operations, 1 death.

Leopold has laid down the conditions necessary for undertaking this operation with success. The woman should have energetic contractions, and she should be in good health; there must be no trace of infection, gonorrheal or otherwise; and lastly, the bag of waters should be intact. When all these do not exist, Leopold has recommended either Porro's operation or basiotripsy. The same applies to cases where asepsis cannot be guaranteed.

Dr. Pinard added that the foregoing results were those obtained by very experienced operators, where they were able to operate on certain selected cases. He then went on to give the results of symphyseotomy such as it has been done since 1893 at the Clinique Baudelocque. From February 4, 1892, to January 20, 1899, a hundred symphyseotomies had been performed by Varnier, Potocki, Lepage, Wallich, Bouffe de St. Blaisé, Baudron, Funck-Brentano, and Dr. Pinard. There had been in all twelve deaths, and from this number should be subtracted the following cases: intestinal obstruction, infectious influenza, pneumonia, eclampsia, and three cases of infection having no connection with the operation. The mortality in all cases was therefore only five per cent. Thirteen children died, and seven cases were due to applications of forceps before symphyseotomy, to an incomplete symphyseotomy, and to accidental bronchial pneumonia, which would make six per cent. An important point in Dr. Pinard's communication was that twenty-two women already symphyseotomized came into the service a second time. In only six cases was a second symphyseotomy found necessary.

From 1882 to 1899 craniotomy was performed eighty-one times in Dr. Pinard's service at the Clinique Baudelocque, or at the Lariboisière Hospital, and the mortality was 11.5 per cent.

Lastly, premature birth was induced in one hundred cases, and there was only one death. As for the children, only sixty-seven survived.

Dr. Pinard concluded his report by saying that he considered an accoucheur should be primarily a physician, and therefore do all he can to safeguard the lives of both mother and child. He denounced induced labor on account of its heavy infantile mortality; on the other hand he did not believe it right to discuss the relative value of the mother's life or the child's. Moreover, a physician should prefer a relatively complicated operation with a sure result to an easy one with a doubtful result. Dr. Pinard said the degree of contraction of the pelvis is not of so much importance as is the question of its relation to the dimensions of the child's head. When the contraction is very considerable, Cæsarian section should be carried out. Above 6.5 centimeters symphyseotomy is, according to Dr. Pinard, the best operation, when the woman is not infected. As to what one should do when she is already infected, the experience acquired so far is not sufficient to justify one in deciding positively for one or the other operation.

Dr. Pinard concluded with the following words: "These things should be suppressed in the therapeutics of pelvic contraction: (1) Induced labor; (2) forceps or version when there is some osseous obstacle; (3) embryotomy on a living child. During labor two things should be avoided: (1) Tedious labor; (2) infection. The operations to be carried out are: (1) Symphyseotomy, pubiotomy, ischio-pubiotomy, coccygotomy; (2) Cæsarian section, with or without hysterectomy; (3) embryotomy on a dead child.

In a recent number of the *Belgian Medical Press* Dr. Siegrist, of Zurich, described his method of treating an acute attack of sciatica. The patient is placed on his side so that the region affected is quite uncovered, and on the latter a cloth dipped in hot water (50° to 60° C.) and slightly wrung out is placed, and covered over with a piece of flannel and

several layers of paper. After ten to fifteen minutes the cloth is changed, and this is done for an hour or two. This treatment is followed out three to four times daily. A complete recovery is sometimes obtained in three to four days.

The *Presse Médicale* published recently an article on the treatment of pruritus which may be of interest to our readers. This affection, considered by the majority of practitioners as of benign nature, may in some cases, especially with old people, take on a malignant form. Two things should be seen to—the pruritus should be relieved by local applications, and an inquiry should be made as to its cause. Ordinary baths do not give very good results, and often enough the patient is more readily relieved by low temperature vapor baths, to be used with precaution, or simple sponging. Alkaline baths, or else water containing some aromatic vinegar or even ordinary vinegar—as, for example, one liter of vinegar to each bath—are to be recommended. Tartaric acid solutions (1 to 5 grammes per 1000 of water), chloral solutions (one-per-cent), or glycerin mixed with carbolic acid (1:100), have a calming effect. However, if the skin is much irritated, alkaline solutions should be preferred, as:

Salicylate of sodium, 8 grammes;
Bicarbonate of sodium, 8 grammes;
Water, q. s. for one liter.

At times one is obliged to use the wet pack. Chamomile tea or pure rain-water, as recommended by Dr. Besnier, of the St. Louis Hospital, is efficacious. Powders have an uncertain effect. Starch powder, for instance, is only temporarily useful, and its use is often followed by an increase in the pruritus. Among ointments two are specially to be recommended; the first, indicated by Vidal, is as follows:

Glycerin and starch, 20 grammes;
Tartaric acid, 1 gramme.

The second is recommended by the celebrated Hardy:

Almond milk, 100 grammes;
Sulphur, 10 grammes.

Another is the following:

Carbolic acid, crystallized, 2 grammes;
Oxide of zinc, 50 grammes;
Vaselin, 50 grammes;
Cocaine, 1 gramme.

Or this:

Oxide of zinc, 50 grammes;
Vaselin, 50 grammes;
Menthol, 1 gramme.

The use of flannels is often pernicious; they should be changed night and morning, and a small amount of oxide of zinc and bismuth may be applied inside. Internally carbolic acid is often efficacious. The following is Dr. Brocq's formula:

Carbolic acid, 5 centigrammes;
Magnesia,
Valerian extract, of each q. s.
For one pill. Three to six pills daily.

Jaborandi may sometimes be employed when there is dryness of the skin, but such preparations should not be used in old people. In case some action on the nervous system is necessary, valerian and bromides should be preferred to opium or belladonna.

The treatment varies with the condition of the patient. Such taints as alcoholism, diabetes, arthritism, stomach trouble, liver or intestinal complaints, call for special indications. Alcoholism is a frequent cause of pruritus. Complete suppression of coffee, liquors, wines, are a *sine qua non*. Exciting foods should be eschewed; constipation is to be avoided. Jaundice sometimes brings on pruritus, and this complication disappears when the jaundice dies out. In pruritus due to nephritis, a milk diet is very beneficial.

On October 16 the greater part of the externes of the hospitals in Paris, about 600 to 700, gathered together at the Hôtel de Ville to take part in the competitive examination for fifty or sixty places of internes. The written composition took place at just twelve o'clock, and two hours was given for it. All the externes going in for this examination worked strenuously, one might almost say night and day. In the evening a dinner was given them in the "salles de garde" of the different hospitals, and afterwards every one adjourned to the Bal Bullier on the Boulevard St. Michel. In former years this ball was not apt to prove a source of edification, but of late it has grown to have an artistic merit of its own, and can be compared to what is called the Bal des Quat'z' Arts. Each "salle de garde" prepared a pageant, each one on its own lines. For instance, last year St. Antoine Hospital represented the temptation of St. Anthony; the Beaujon Hospital, the hospital of the injured and run over, on account of numerous automobile accidents, the "Enfants Malades" la Marche à l'Etoile, or the Star of Bethlehem; and so on. In my next letter I shall give a description of this very medical ball.